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ABSTRACT

This report documents a meeting of experts in educational documentation and information from both developed and developing countries, who met to examine issues involved in the implementation of a proposed network for the better use of information resources in educational development. Included are summaries of the business meeting and discussions of working and information papers presented to the group as a whole, as well as the reports and/or recommendations of three working groups. The first group addressed network models, compatibility, norms and standards for the proposed International Network for Educational Information (INED), and coordination and management of the network. Focusing on the range of INED services for both developed and developing countries, the second working group examined models of international networking; support systems for the transmission of information; personnel requirements for national and regional centers; and user awareness. The third working group discussed and presented recommendations for the sensibilization and orientation of users, and technological options, norms, and standards for INED. Documentation appended to this report includes the working agenda, suggested topics for working groups, a summary of replies to a survey on INED, and a list of participants, as well as the papers presented: (1) "Present Situation of Unesco Resources in Educational Documentation and Information and Its Future Development"; (2) "IBE Activities in the Field of Educational Documentation and Information: Its Present Situation and Future Development"; (3) "Unesco Integrated Documentation Network: Computerized Documentation System (CDS)"; () "Promotion of Information Technology Applications in Third World Countries: PGI's Role" (Jacques Tocatlian); (5) "Unesco's General Information Programme for the 80s"; and (6) "Information Network Development" (F. V. Mahon). (BBM)

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UNITED NATIONS EDUCATIONAL,
SCIENTIFIC AND CULTURAL ORGANIZATION

INTERNATIONAL BUREAU OF EDUCATION

Meeting of experts in educational
documentation and information

International Conference Centre
Geneva, 20-24 May 1985

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PROCEEDINGS

1. A meeting of experts in educational documentation and information convened by the IBE was held at the International Conference Centre, Geneva, from 20 to 24 May, 1985.

2. The meeting had before it the following documents:

Provisional Agenda and Timetable (UNESCO/BIE/DOCINF/1 Prov.)

Present situation of Unesco resources in educational documentation and information and its future development (UNESCO/BIE/DOCINF/2)

IBE activities in the field of educational documentation and information: its present situation and future development (UNESCO/BIE/DOCINF/3)

Suggestions for topics for group discussions (UNESCO/BIE/DOCINF/4)

Unesco Integrated Documentation Network; Computerized Documentation System (CDS) (UNESCO/BIE/DOCINF/Inf.1)

Promotion of information technology applications in Third World countries: PGI's role (UNESCO/BIE/DOCINF/Inf.2)

Unesco's General Information Programme for the 80s (UNESCO/BIE/DOCINF/Inf.3)

Summary of replies to enquiry on international network for educational information (INED) (UNESCO/BIE/DOCINF/Inf.4)

Information Network Development (UNESCO/BIE/DOCINF/Inf.5)

Item 1 of the agenda

3. The meeting was opened by Mr S. Spaulding (Director, IBE) who welcomed the participants and said the meeting was the most important to be held by the IBE in 1985. Mrs Furtado (Head, Documentation and Information Unit, IBE) outlined the Agenda and indicated that this was to be a working meeting, with emphasis on group work.

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Item 2 of the agenda

MRS. MITINA.

4. Mrs Korhonen (Finland) agreed to take the Chair. Mr Asakimori (Japan) and Mr Neelameghan (Unesco PGI) were unanimously elected Vice-Chairmen. Mr Marshall (Ireland) was elected Rapporteur.

5. Mr Rasmussen (Denmark) proposed to amend the provisional agenda by inserting, after item 5, new items 6 and 7, "Presentation of other existing networks" and "Discussion of the tasks of the working groups", and after the new item 8, an item 9, "Presentation of group reports". The provisional agenda, thus amended, was adopted.

Item 4 of the agenda: UNESCO/IBE/DOCINF/2

6. Mrs Carjaville (Unesco ED/PLA) presented DOCINF/2. The four documentation centres of the Education Sector were to be integrated into one centre. It was hoped to produce a single data base with standardized procedures. There was a need for a quantitative and qualitative improvement in the distribution of documentation to developing countries. There was room for better co-operation between institutions of Member States, from the point of articulating their own needs and suggesting how these needs might be met.

7. Mr Klilib (BREDA) situated the NEIDA network in relation to networks in other regions and retraced its development. Among the 44 States of the region, 34 participate in the network. He underlined the importance for each national co-ordination centre to have its own documentation centre to distribute information at the national level and in associated projects. National networks were now being put into place.

8. In the absence of participants from the other regional networks (APEID, CARNEID, EIPDAS, CODIESEE) Mrs. Furtado explained that the situation in NEIDA is similar to that in the other networks.

9. Mr Vollmann (CEPES) stressed the difficulty of collecting documents in languages other than the official languages of Unesco. CEPES has an abstracting service for periodical articles where the same language problems are also encountered. The library holds an important collection of the proceedings of the national and international conferences on higher education. These reports are often not published but are a useful source of information. The library also collects legislative texts concerning the recognition of the equivalence of diplomas in Europe and statistical reports. The speaker underlined the importance of the quarterly journal *Higher education in Europe* (published in English, French and Russian), and the series of monographs on higher education systems in Europe. It was planned to computerize the library using the Wang system and to set up a microfiche service for the exchange of documentation.

10. Mrs Furtado presented CRESALC in the absence of the participant from that Centre. CRESALC is in the process of creating a network and co-operates with the IBE and REDUC. The speaker then introduced the specialized institutes of Unesco: the IBE (comparative education) and the Unesco Institute of Education, Hamburg (for lifelong education).

11. Mrs Giere (Unesco Institute for Education, Hamburg), after a brief description of the library's holdings, outlined the information services: selection and display of publications at meetings; compilation of bibliographies and directory of writers on lifelong education; maintenance of a local information service on the UN and its specialized agencies; maintenance of library services with 1,000 visitors per year, and the compilation of 1,500 bibliographies per year in reply to requests. UIE has close links with other Unesco units, the IBE and Member States. Traditional processing methods, including manual researching, are used, but the library is in the preliminary stage of computerization. Mrs Giere hoped that participants would give concrete suggestions for sharing information.

12. Mrs Du Pouget (IIEP) presented a brief description of the library and its acquisition policy. She mentioned the abstracting bulletin which in future will group the abstracts under subject headings. Information is distributed widely to some 900 correspondents. Traditional processing methods are used, but the library hoped to be computerized soon in order to offer better services.

13. Mr Al-Rawi (ABEGS) presented the work of ABEGS which has 7 Member States. Not only education is covered but also science and culture. ABEGS publishes annual statistical reports on higher education, school education, and vocational education. Research is also carried out. ABEGS is at the present preparing a network among the universities in the area. Mr Al-Rawi hoped to gain ideas from the meeting on how to set up their network. He stressed ABEGS's close co-operation [illegible] in ALECSO and other international and regional organizations and its participation in ALECSO and Unesco projects.

Discussion

14. Mrs Clayton (United Kingdom) enquired whether a directory had been published covering all these regional offices, institutes, and units with the list of their publications. Mrs Furtado replied that the IBE published a directory of educational documentation services, including those that participate in INED.

15. Mr Marshall (Ireland) stated that Ireland, though classified as an industrialized country in economic terms was really a 'developing' country as far as educational documentation and information was concerned. The library in the Department of Education only has one professional librarian with two assistants. Computerization is planned but practical problems are involved. Good educational libraries exist in Ireland, especially in the universities, and teacher training colleges and it should not be too difficult to co-ordinate them into a network, but there was a need for a regional network within which a national network would be developed. He felt the need for support from a European network and mentioned that CEPES (Bucharest) and IIPE do not seem to be part of a co-ordinated network. He requested more help from large centres for small ones. He stated that Unesco information reaches Ireland but is not exploited fully in the absence of a structured national network. He suggested that Unesco help in the creation of a European regional network as in the other regions.

16. Mr Barrett (Council of Europe) underlined the existence of the networks EUDISED (Council of Europe) and Eurydice (European Communities). He pointed out that EUDISED covered 19 countries, collecting information on educational research and development.

17. Mrs Pereira Paiva (Brazil) said Unesco publications were used less and less in the universities owing to distribution problems. The quality of publications was good but they were not available in sufficient quantities. She suggested a better dissemination of Unesco publications in university libraries for a better utilization of the documentary resources.

18. Mr Vollmann (CEPES) stated that the EUDISED and Eurydice networks concerned only Western Europe. Europe should be considered as one geographical region. In this regard, IBE's activities were useful as they covered both Eastern and Western Europe.

19. Mrs Ceballos (Colombia) stated that they face language problems as few documents exist in Spanish. She complained that the distribution assumed by the Regional Office in Chile is not efficient, as universities are not receiving the documentation. She said the dissemination was better when carried out by the IBE.

20. Mr Neelameghan (Unesco PGI) presented the two PGI documents UNESCO/BIE/DOCINF/INF. 2 and 3. He outlined the background to the activities, programmes and projects of PGI. He stressed the interest of PGI in IBE's programme, especiallly the INED network, and described PGI's collaboration in other networks. He affirmed the similarity of the long-term goals of INED with those of PGI. He proposed that PGI's experience be used by INED in the development of network infrastructures, in the sharing of resources such as the financing of meetings, the development of national facilities, utilization of the experience of other countries through wider co-operation, the better use of modern technology, the provision of computer and training facilities, the sharing of information with other existing networks, the setting up of national norms, and the development of data bases. In order to avoid the considerable amount of duplication in the work of cataloguing and indexing Unesco documents and publications and in order to make this material available to users immediately, he suggested attaching to the publications a sheet which would give a full bibliographic description of the publication; by adopting an international catalogue system this description would facilitate the later computerization of the data through the common communication format.

21. Mrs Forestier (Unesco LAD) described the Unesco Integrated Documentation Network and the Computerized Documentation System, CDS/ISIS (UNESCO/BIE/DOCINF/INF.1). In addition to indexing and loan management, CDS/ISIS software had been developed to cover other activities, such as the personnel roster and the distribution of publications (mailing lists). It is available free to non-profit organizations. All Unesco publications listed in the catalogue covering the period from 1946 to 1971 as well as all sales publications produced since 1972 are now available on microfiche in English, French and Spanish. As from 1984, all publications will be available on microfiche in the six

official languages of the organization. In addition, micrographic help is given by LAD to units within Unesco and to Member States. LAD coordinates all the documentation services at Headquarters with the goal of creating a network with the Regional Offices and the specialized institutes. The accent is on complementarity with the aim of integrating all the educational documentation centres into one single educational data base in order to avoid duplication. At Unesco Headquarters, the cataloguing manual is at present being adapted in view of the integration of the photo and film libraries. The CDS/ISIS software has now been adapted for use on mini and micro-computers. Mrs Forestier stressed that the bibliographical data base and the thesaurus will be available free of charge to Member States.

Discussion

22. Mr Al-Rawi (ABEGS) confirmed that the problem of duplication in cataloguing exists in the area covered by ABEGS. He stressed the need for more collaboration between Unesco adn ABEGS. The bibliographical data provided at national level by the seven Member States could be forwarded by ABEGS through ALECSO to Unesco. Channels for procedure should be created.

23. Mr Dosunmu (Nigeria) related that his country's efforts to computerize had not been successful, as they had encountered problems in the transfer of technology from European countries. The major problem had been in the great number of MARC formats. It was felt in Nigeria that further developments should be awaited in order to develop an information retrieval system using a format which would permit the exchange of information between libraries. The speaker stressed that his country was ready to create a computerized network but requested advice in the choice of software.

24. By way of comment, Mrs Furtado pointed out that Member States are not well enough informed about the activities of Unesco. She stressed the right of Member States to obtain free the software created by Unesco.

25. Mr Dosunmu replied that, on the national level, other fields besides education are covered. He hoped to find a software that will be compatible not only with Unesco but also with other organizations working in other fields.

26. Mr Mahon (Euronet) suggested that it is more a policy problem than a political one. On the technical side, he said a single software was not appropriate for all fields in view of the incompatibility in the kind of information given. A single software would not be practical.

27. Replying to Mr Dosunmu (Nigeria), who asked the reason for the failure of UNIMARC, Mr Mahon (Euronet) explained that there was too much to integrate and too many compromises to be made. He went on to say that any standard is a compromise, but the Common Communication Format tried to create a framework for standardization. Common cataloguing seemed possible and in fact was already in existence. Mrs Forestier (Unesco LAD) pointed out that MARC was used at the beginning in Unesco before the adoption of ISIS. However, the MARC format could be added to documents.

28. The participant from Senegal thanked Mrs. Furtado and the IBE Documentation and Information Unit for the efficiency and rapidity of their services. He stated that Senegal was backward in the field of documentation and that computerization was out of the question. Needs were far more basic. Unesco and IBE publications are received but they do not reach the users, who are mainly teachers and students whose needs are impossible to fulfil. He requested more collaboration from Unesco to provide relevant documentation, such as periodicals and especially books. The documentation collections are mainly built up from gifts. A reform is being undertaken in Senegal (the 'Nouvelle Ecole') and the creation of a network for school centres ~~has been attempted without~~ is in progress ~~success~~. It was hoped that the meeting would provide aid, advice and collaboration.

29. The participant from the German Democratic Republic said that Unesco and IBE activities are very useful for the GDR, which supports all these activities. The national network is supported by the Government. She suggested that the recommendations of EDICO IV should be taken into consideration by the IBE. Unesco and IBE documents and publications are well distributed in the country and are useful for achieving national goals.

30. Mrs. Furtado reassured the participants from developing countries that the technical processes involved in documentation work are the same whether using manual or mechanical methods and that discussions should not only cover advanced technology but also the needs of developing countries.

31. The participant from the United Kingdom stressed that the needs of each country are very different and may be contradictory. For example, the UK needs primary sources from developing countries and hopes that Unesco will provide information on what is available.

32. The participant from China stated that Unesco has produced valuable documents and publications but that these resources are scarcely used in China because of the language problems. University researchers usually read English or French but classroom teachers, for example, cannot read European languages. Translations of selected publications are made or abstracts are written (c.f. the CEAS project). Another problem is that the National Commission receives so many documents from Unesco that it is impossible for one ~~untrained~~ librarian to process them, not to mention the lack of space for storage. Therefore, documents are not made available to users. Comparative education has become a popular subject in China and an educational research journal has more than 30,000 subscribers. Many other journals covering education in other countries are produced in the universities. The mimeographed documents of Unesco would be very useful in this field, but they are usually not accessible to prospective users. Mailing lists should be updated and kept up to date in an effort to attain a better dissemination of information and reach all users, not only those who can pay. An effort should be made to distribute documents to persons who are strategically placed using the SDI strategy. This is important for getting the right document to the right person at the right time. He emphasized that more people should be trained to specialize in analysing and abstracting specific topics. In November 1984, a national meeting was

convened to set up a network among all the educational research institutes and universities in each province. The speaker stated that his Institute coordinates this network and all the provinces participate; local centres are in the process of being set up. He hoped that the present meeting would be useful in setting up a worldwide network for improving education.

33. The participant from Nigeria stated that people in his country had access to the literature on education, notably through the National Library, which holds documents from the UN and its specialized agencies. He regretted that the new subscription-based system for UN documents which had been introduced caused financial problems in Nigeria owing to the lack of foreign currency. This had dire effects on the collections. The adult literacy and reading campainges needed the information from other countries which is found in Unesco documents. The projects and reforms needed more information than is being received at present.

34. Mrs. Furtado explained how the distribution of Unesco documents and publications is carried out. In addition to the compulsory distribution to National Commissions and certain libraries, different sections have their own mailing lists. Anyone may request to be placed on these lists. Documentation centres in different countries should diffuse information on the availability of publications. She mentioned the CEAS project as a means to overcome the problem of language barriers. Member States and especially network members should make an effort to abstract, in English or French, documents written in languages which are not widely known.

35. The participant from ABEGS suggested that some documents should remain free to National Libraries and certain institutions.

36. Mrs Zsadon (Hungary) stated that the National Library in Hungary receives Unesco and IBE publications. The national system is in progress; abstracts are made, although there is some overlapping. Centres working in the fields of educational research, planning and educational technology form a network for storing and disseminating information. She requested guidelines for computerization and help in training specialists as well as the provision of more primary documents.

37. The participant from China suggested that the participants in the meeting could help Unesco to revise their mailing lists. Unesco PLA stated that, within the framework of the reorganization of the Unesco educational documentation centres, all the mailing lists would be revised and accumulated into a single mailing list, complementary to the IBE's.

38. It was agreed by the participant from Ireland that the documentation centres should inform others in their own country on the availability of documents. There would always be problems in view of the volume of the documentation. Distribution could either be blanket or selective. For example, Euronet's priority is not distribution but access to documents when needed. He stressed that it was more important to know what was available and to obtain it when needed.

39. The participant from Angola felt that Unesco should allocate more budgetary resources to sending experts into the field. He felt that the methodology for the elaboration of mission reports was confused and he deplored the lack of information on and follow-up to, these reports.

40. Mrs. Furtado explained that the reports are presented to the Director-General, who forwards them to the national authorities who give permission for their distribution. If permission is not given, the report is not distributed. IBE has encountered this problem in not being able to distribute some reports which are nevertheless listed in Unesco catalogues.

41. The participant from CEPES suggested that Unesco should be more aggressive in its marketing of CDS/ISIS in order to attract the maximum number of persons interested and that the training courses should be more frequent.

42. The participant from Unesco LAD stressed that Unesco cannot impose its documentation system. Training facilities are offered to 30 to 40 programmers each year, but the small team at Unesco would have to be enlarged. Training for librarians and documentalists is offered to approximately 10 trainees per year for not less than 3 months. Each member of the network receives continuous training in cataloguing and indexing.

43. The participant from Italy explained that CDS/ISIS was running satisfactorily in its institution. All the necessary training had been received from Unesco, but the only problem encountered was in the interface between the programmes used by the different data bases in the different networks, hence the problem of compatibility and duplication. Some information was sent to several data bases run on different software. She asked how many libraries used the CDS/ISIS package. Mrs Furtado replying to the participant from Italy, stated that duplication did not exist in all data bases. Methods of co-operating without overlapping should be found. In the future, more co-ordination would be needed.

44. The participant from Unesco LAD replied that there were approximately 100 installations in documentation centres and libraries.

45. The participant from Finland mentioned that there was interest in their country for CDS/ISIS and that the ISIS system was spreading.

46. The participant from Australia asked whether a list of CDS/ISIS users was available, and whether ~~information~~ data was exchanged within the system. The participant from Unesco LAD said that a list of users could be made available during the meeting and that an information bulletin informs users of new aspects of the system. Informal contacts are also maintained with users. The participant from Australia then clarified asked whether CDS/ISIS users exchanged bibliographical data. The participant from Unesco LAD replied that the exchange of bibliographical data had not yet been established, although Unesco sends magnetic tapes regularly to IDRC in Canada. Soon it will be possible to exchange information on line with the IBE once the Transpak link has been installed between Paris and Geneva.

Item 5 of the Agenda : UNESCO/BIE/DOCINF/3

47. Mrs. Furtado introduced documents UNESCO/BIE/DOCINF/3. She asked for comments on the activities and the future development of the INED network and on Recommendation 71 of the International Conference, on Education. She reminded the participants of the questions asked in the document and hoped that answers would be found in the working groups.

Discussion

48. The participant from Denmark suggested that Mrs. Furtado introduce the document UNESCO/BIE/DOCINF/Inf. 4, considered to be a key document. He declared that he was surprised that so few replies had been received.

49. Mrs. Furtado stated that the answers to the questionnaire were disappointing, as only 15 replies had been received (although another reply was received later). Some countries had designated the National Commission as their participating institution and it was these National Commissions which had not replied. The replies received were not considered representative of the needs of the network as a whole.

50. In reply to a comment by the participant from Denmark, Mr. Spaulding explained that the National Commission had been asked to designate an institution. He added that sometimes very little was known about the institutions. In the future, more care should be taken in the selection of the institution. At present, only one institution is designated per country, but some large countries might need more than one. He felt than an agreement should be set up, requiring an institution to send contributions in order to become a member of the network. The IBE's responsibility towards the members should be examined. At the moment, INED is essentially a mailing list with no feedback.

51. Mrs. Furtado agreed with Mr. Spaulding that some institutions are not in a position to participate fully in the network, as they do not have the necessary national infrastructure. She requested the participants to provide solutions for improving the network.

52. The Chairman invited participants to describe their own activities.

53. The participant from the USSR stressed the enormous activities of Unesco but said that efficiency was lacking. She supported the Chinese participant, who said that the material could not be used at the right time. National Commissions receive too many copies but not always the most relevant documents needed, and other institutions do not receive the documents at all. It was stated that the SIRE series was very useful in preparing reforms and should be maintained. It was felt that questionnaires were very good for feedback; they were received from the IBE but not from Unesco. It was suggested that the mailing lists should be more carefully established and a regular exchange proposed of information between the regional centres on the one hand, and the regional and national centres on the other.

54. The participant from Nigeria stated that communications were poor in developing countries; for example, in this particular country, postal distribution services were a major problem. These delays it was felt, should be taken into consideration when setting up networks. Referring to paragraph 3 of document UNESCO/BIE/DOCINF/Inf. 5, the speaker agreed with Mr. Mahon that modern technology is essential to the proper development of a network. He asked that, when planning the network, the slower pace of communication in developing countries be allowed for.

55. The participant from Australia explained that the questionnaire on INED had been received in her country in a period of work overload and that her institution had sent in its reply later. She presented the Australian education index which includes 1,000 documents per issue, published quarterly. The entries are also part of a data base available on-line through T~~im~~ymenet and Telenet. She agreed to contribute ~~abstracts~~ Bib. Recs. in machine readable form to INED.

56. The participant from CEPES asked whether the USSR institution is able to send material to the IBE reflecting the situation of educational research in the USSR, and whether the institute participating in INED keeps the material received by IBE or is able to disseminate it throughout the USSR. The participant from USSR replied that their institute does not send out all the material received. It is dispatched according to a list of subscribers. It is known that the IBE receives a great deal of material, including documentation from other centres besides the soviet institute.

57. Mrs. Furtado confirmed the active relations with the USSR institute and the Ushinsky Library which contributes abstracts to the Bulletin. Educational catalogues are sent each year, but the IBE is not interested in everything that is produced and makes a selection. The USSR institute participates in the CEAS project by sending abstracts on educational reforms which are entered in the IBE data base and published and distributed in English and French. Mrs. Furtado emphasized the good collaboration between INED and USSR.

58. The participant from Denmark felt that participants should stay closer to realities. The problem of mail must be remedied. He mentioned the experience in Denmark with telecommunications satellites, which offer a very cheap way of transmitting data. He pointed out that Recommendation 71, drafted eight years ago, is now out of date in view of technological progress. He suggested the meeting should consider new technologies for solving urgent problems and should propose a new recommendation on the proper use of modern technology and the speed with which it can be accomplished be helping every country that needs help. Group discussions could contemplate the modernization of Recommendation 71 and how better to exploit the new technologies.

59. The participant from China called for a better co-ordination between regional and international networks. The University of Canton produced abstracts under contract for the Bangkok Regional Office. It was asked whether copies might be sent to IBE. Abstracts are also contributed to CEAS and it was asked whether these could be reproduced and distributed to other centres in China. In this way it was hoped that the duplication of efforts would be avoided.

60. Mrs. Furtado explained that the CEAS abstracts are translated, published and forwarded to the Regional Offices for distribution. The abstracts are entered into the IBE data base and information can be provided at any time. Centres receive the catalogue of the IBE data base. She felt that there was no problem in distributing copies of the abstract before publication.

61. The participant from ABEGS talked about that Bureau's experience in the development of national data bases. These differ from country to country even within the ABEGS region. In order to unify the data base worksheets, APEGS had invited ALECSO and Unesco representatives to meetings to agree on a format. ABEGS will use the Arabsat satellite for the transmission of educational information. The speaker proposed closer contacts between the ~~Arab regions~~ ABEGS and the IBE.

62. The participant from Ireland, referring to the proposed regional training workshop, enquired whether this will take place. Mrs. Furtado stated that no decision had been taken, but that the workshop would not be held in Europe.

63. Mr Mahon (Euronet) presented document UNESCO/BIE/DONCINF/Inf. 5 and stressed that, in the present context, the most difficult task was to identify the regions where needs are greatest. He emphasized that networks work because people want them to work. Rigidity is the greatest damaging factor and one should not spend too much time in the beginning deciding how the network should work. He pointed out that the first objective was to identify the real participants, those who have something to contribute and those who have something to gain. Secondly, standards should be kept to a minimum, the most important being the decision on the working languages. He supported the suggestion of Mr Neelameghan for a standardized description to accompany documents. He asked the question: what services are needed? However, no one can anticipate what they want. Mr Mahon suggested a close look at the questions not answered to discover the reason why. A network should fill these gaps. He stressed that it is not a question of having everything, but of knowing where information exists, or of knowing who knows where information exists. Mr Mahon further underlined that the question of appropriate technology was the most important for the developing countries. It is important to know what technologies exist and how they are being developed. He gave the example of the telex, which is an efficient means of communication and to which most people have access. He pointed out the total lack of compatibility in the new information technology; the idea of floppy disks is reasonable but as yet there is no standardization. He felt that telecommunications should be further investigated, as people do not know that telecommunication networks exist, owing to a lack of information on how to use what exists. He emphasized that a network is not a way of distributing everything to everybody. Mechanisms should be found to help countries select what they need. Finally, someone must co-ordinate and animate the network activities.

64. The participant from Austria agreed with the speakers and stressed the needs for standards for the transfer of data.

65. The participant from Ireland felt that the structure of the network must be democratic, it must cater for all users equally, although resources might be allocated on a priority basis. In this context, the lack of an INED European regional network was a hardship to European participants. He asked for reassurance from Mr Spaulding on the question of a democratic structure.

66. In reply, Mr Spaulding (IBE) pointed out that certain aspects of education are not of interest to everyone. Some centres are willing to provide abstracts, while others are not. Standards have to be drawn up. He indicated that mechanisms are being set up for collecting information on research in certain areas, and evoked the history of ERIC. He stressed the problems in the exchange of information via hard copy; exchanges in machine-readable formats were necessary. He proposed selecting a certain number of centres in developing countries, providing them with microcomputers, software, training of personnel, giving demonstrations and exchanging floppy disks. Mr Spaulding noted the move away from mass information technology towards the use of more personal technology and communications (i.e., use of personal computers vs. mainframes; home tape recorder vs. broadcast media, etc.).

Item 6 on the agenda

67. Mr Barrett (EUDISED) gave a detailed description of the European Documentation and Information System for Education. This is a Council of Europe activity in which 19 European centres participate (18 Western European, 1 Eastern European). EUDISED has followed two major lines of development: the multilingual thesaurus and the data base.

68. The EUDISED multilingual thesaurus was first published in English, French and German in 1974. These three language versions were developed simultaneously in order to avoid cultural bias. They were soon followed by Spanish and Dutch versions. The 1984 edition included in addition to the five languages already mentioned, Danish, Italian, Greek and Portuguese versions.

69. Since 1981 the EUDISED thesaurus has been managed jointly by the Commission of the European Communities and the Council of Europe.

70. As regards future developments, two subthesauri are being developed: one in the area of special education, the other in the area of language teaching and learning. Perhaps it will aslo be possible to link specifically national educational terminology to the thesaurus.

71. The data base contains information in abstract form on recently completed and ongoing educational research projects in 19 European centres. The data base is available in the form of a printed bulletin (EUDISED R&D Bulletin) and also online worldwide through the Information Retrieval Service of the European Space Agency (ESA/IRS).

72. Data are supplied by national agencies either on standardized input sheets or in machine-readable form. Abstracts are in either English, French or German. Later this year the subject indexes will be in all language versions of the EUDISED thesaurus.

73. At the outset it was not intended to concentrate exclusively on educational research data. As regards future development, it is possible that information concerning articles in educational periodicals (EP) will be included in the data base. In 1975 and 1982, experimental EUDISED EP Bulletins were published. In 1975, the possibility of incorporating information on audiovisual teaching aids was also examined. The incorporation into the data base of the Council of Europe's own publications in the field of education is under active consideration.

74. Mr Mahon (EURONET) enquired whether the EUDISED Thesaurus was compatible with other thesauri.

75. Mr Barrett (EUDISED) replied that the EUDISED Thesauris was similar to the IBE amd ERIC thesauri but was not completely compatible. However, it was widely used and was the tool of both EUDISED and EURYDICE.

76. ERIC. Mr Brandhorst (ERIC) introduced his description of the Educational Resources Information Center by saying that the Center had been in existence since 1966 and was in fact the USA national bibliographical data base in education. It was also the national participant in INED. In the 1960s, the US Office of Education realized it was losing control of the literature resulting from funding contracts. ERIC was started internally and expanded later to cover all national literature. He enquired whether Unesco's formats could handle INED. He continued by pointing that ERIC is a decentralized system with 16 centres each covering subfields. Each Clearinghouse gathers documents and processes them according to rules and guidelines established centrally. The bibliographic data are then transmitted into a unified data base. The various Clearinghouses have different levels of funding and different skill levels. The data are also of varying quality. They have different equipment and hardware; they are physically remote from one another and therefore have the problem of duplication of effort. INED will have the same problem but could learn from ERIC's experience.

77. Mr Brandhorst stressed the importance of defining subject coverage, type of literature coverage, and user coverage. This should be raised at the very beginning of the information system and should be kept in mind at all stages of its development. He also felt that the term "education" needed defining. In addition, ERIC only covers the fugitive literature, because the other literature is already elsewhere. Journal articles are kept distinct in the data base in view of the inability of providing copies of articles. Mr Brandhorst emphasized that it is not possible to cover everything and that ERIC preferred to do well on a small part. Originally, ERIC served only the researchers but now serves the entire community, both researchers and practitioners. This coverage affects the document selection criteria and he advised the early careful definition of these criteria in order to steer a straight course.

78. Mr Rasmussen (Denmark) request full written information on the networks being presented.

79. Mr Al-Rawi (ABEGS) mentioned that a brochure describing ABEGS was available to participants. He did not wish to add anything more to his description made the previous day.

80. EURYDICE. Mr Richardson (Eurydice) explained that the Educational Information Network in the European Communities had been set up in 1976 following a resolution of the Ministers of Education of the Community as a co-operative action programme in education. It supports action programmes with information back-up work. The network is co-operative and decentralized. It is composed of national units, at least one in each State, or more where appropriate, e.g. Belgium, F.R.G., U.K. The central unit in Brussels plays a co-ordinating role in storage, dissemination, and in relaying questions and answers. It also handles the documentation from the different Community institutions. After three years of preparation, EURYDICE entered its first operational phase in 1980. It concentrated its efforts on policy-makers at European and national levels. Key dossiers on essential areas of education were drawn up. A question and answer service was set up but encountered difficulties in working in six languages. Each national unit is prepared to receive questions and give answers in its national language. The questions received at Brussels are first translated and even transposed into the cultural setting of each Member State. A regular service provides overviews of national policy situations; 4,000 have been prepared during the last four years.

81. EURYDICE works in close co-operation with the Council of Europe and EUDISED; also working together in developing the thesaurus. Questions are also referred to CEDEFOP, OECD and ILO, thus creating a rapid referral service. Mr Richardson emphasized the importance of knowing where to find information. He also mentioned that the central unit provided more than 20,000 documents per year upon request. As part of an active information policy, questions are clustered around a policy theme and the answers are used to make pubications which are available in limited quantities. The reactive policy consists in sending key documents to people identified in advance. In June 1984, the Ministers of Education met to review the activities of EURYDICE and made important policy changes. Instead of expanding the central network, parallel networks will be created. Each Member State must designate at least one academically recognized centre in specific fields. For example, a centre for language information will open in the middle of 1986. Data on new information technologies will be moved into a parallel network. Policy-makers will have access to the parallel networks through the central service. During the present review period, all documentation systems are being built up after four years operation and most questions are answered without channelling. Mr Richardson stressed that the question of automation is problematic. It is necessary to establish standards, willingness and a co-operative background for the exchange of information. All difficulties are surmountable. Each unit will gradually become automated but each must be made aware of the possibilities and the types of system in use by other units.

82. Mr Spaulding (IBE) asked for the methodology of analysis used in the preparation of the dossiers. Mr Richardson (EURYDICE) replied that initially the analysis was done by Central Office experts. In the future, external consultants will analyse the data collected by the central unit, as the demand has become too great.

83. Mrs Furtado (IBE) asked how the information is transferred from the national units to the central agency. Mr Richardson (EURYDICE) answered that this is done by telex, post or by phone. On line facilities are not yet available.

84. Mr Hall (IIEP) asked the size of staff involved. Mr Richardson (EURYDICE) stated that the central unit has a staff of fifteen. The budget of the central unit is provided by the Commission of the European Communities and national units are funded by Member States.

85. REDUC. Mr Brahm (REDUC) introduced the Latin American Educational Documentation and Information Network. This educational research and development network for Latin America and the Caribbean is a private non-profit system covering 15 countries and 20 associated centres. Its aim is to build up solutions to problems in order to avoid dependency upon others. It produces an abstracting bulletin covering 400 abstracts per year. Different centres produce their own abstracting bulletin, thus diffusing some 1,500 abstracts per year throughout the whole system. REDUC is a co-ordinating centre producing microfiches of the documents abstracted, bibliographies, the REDUC information bulletin, state of the art papers, and press clippings. To date, some 7,000 abstracts have been prepared. REDUC is preparing to work on microcomputers with specialized software. They will be able to exchange floppy disks.

86. ILO. Miss Wild (ILO) spoke of the ILO documentation services in general. She stressed that no progress had been made as yet in netowrking. The ILO is interested in various aspects of education and all the documentation is collected into the Central Library's data base, Labordoc which is available on several commercial hosts and free to non-profit organizations. Subsets of the data base could be made available to INED. Miss Wild declared that an efficient referral service existed between the ILO and the IBE. She explained that the software used is Minisis and that the ILO thesaurus is published in English, French and Spanish.

87. ILO IRTIS. Mrs Ebel (ILO IRTIS) introduced the Inter-Regional Training Information System. She explained that IRTIS is composed of the ILO regional centres in Africa, Asia, Latin America, and the ILO centre in Turin. The first phase is limited to these regional centres; national centres will join later. Seven data bases are planned. A meeting of members and future users will define needs. Guidelines will be drawn up for cataloguing and abstracting, and descriptors will be taken from the ILO thesaurus. At the regional level, documentalists will be trained who will later train others at national level. In Latin America, the Brazilian centres, SENAI and SENAC translate the guidelines and worksheets for their own use. Mrs Ebel stated that, in setting up new data bases, problems of terminology had arisen and new descriptors would have to be added to the ILO thesaurus in view of compatibility.

88. NORDINFO. Mr Rotens (NORDINFO) explained that the Nordic data base, PEPSY, was a data base on education and psychology which had been planned nearly 15 years ago. Previously, ERIC was used manually in the Nordic countries until on line searching was proposed. Denmark, Finland, Norway and Sweden asked the Nordic Cultural Secretariat for funds to search ERIC. This was finalized in 1973. The public was keen not only on searching but also on pooling resources of the four countries into one single data base. Small feasibility studies were carried out and the Nordic Council for Scientific Information and Research

Libraries (NORDINFO) was persuaded to provide funds to start the project. A Steering Group composed of 2 representatives from the four countries and called the Nordic Expert Group for Pedagogy and Psychology decides on standards and co-ordinates the work. NORDINFO paid the expenses for setting up the data base and the four co-operating libraries gave priority to the common data base. Material is given free from each country. As from 1 January 1983, the data base is on-line and printed publications are available - the third catalogue will comm off the press in the autumn.

89. The EUDISED thesaurus is used in its English version, but national terms are also added, with a view to developing four national thesauri in order to facilitate access. The Norwegian thesaurus is already completed. The data base comprises two levels: the Nordic level and the national level, including titles and keywords in the national languages. It is planned to extract the Nordic material and make it available on other systems. It is foreseen that financial difficulties will arise in 1986. However, it is hoped that the sale of the publications will draw in further financial resources.

90. REGIONAL EDUCATIONAL INFORMATION CENTRE IN SOCIALIST COUNTRIES

Miss Mitina (USSR) explained that the Regional Educational Information Centre in Socialist Countries had existed for several years. It is a subsystem of MISON, the International Information System on the Social Sciences. It is organized on a decentralized basis. The country centres are autonomous but work also on a common basis, carrying out reseach work, and preparing multilingual glossaries and thesauri. Comparison is made with the Unesco, IBE, ERIC and EUDISED thesauri. Since 1974, two bulletins are produced annually, one of abstracts on educational research, the other on a special theme. Meetings of experts co-ordinate the network. Computerization takes place at the national level, but the use of multilingual thesauri helps computerization at the regional level.

91. Mr Huang Shiqi (China) proposed a closer co-operation between the IBE and the ILO. He felt that the work done in the educational field by ILO had a very important implication on educational development. He suggested that ILO publications should be made available to more institutions and that the IBE's Acquisition List should include more ILO publications.

Item 7 on the Agenda: Tasks of the working groups

92. In setting up the working groups, Mr Hahon (EURONET) suggested a division of the participants into three groups. Referring to document UNESCO/BIE/DOCINF/4, he proposed that Group 1 should examine the topics outlined in paragraphs 1a and 4. The name of the group would be 'Network norms and management'. Group 2 should examine the topics outlined in paragraph 1b and its name would be 'Service range (developed/underdeveloped countries). Group 3 should examine the topics outlined in paragraphs 2 and 3. Its name would be 'Services and techniques'.

93. In the ensuing discussion, it was emphasized that each group should keep in mind the questions posed in the document UNESCO/BIE/DOCINF/3 and that the overall common objective of each group was the development of INED. INED should be discussed in all groups.

94. The Chairman then invited the participants to divide into the groups of their choice.

GROUP No. 1

DRAFT RECOMMENDATIONS

1. BASIC INED PRINCIPLES

Whatever the ultimate INED structure, certain basic principles should apply to its design and operation:

A. DEMOCRATIC FOUNDATION

Any and all countries should be allowed to participate in INED, no matter what the present level of resources or sophistication of their designated national institutional INED member. All members should be allowed to participate at their own level and to progress through graduated stages to more advanced levels at their own pace and as they are able.

B. USE OF EXISTING STANDARDS

Whenever possible, existing standards for information handling should be followed. IBE should prepare an examination of ISO information standards and Unesco manuals, guidelines, authority lists, and other normative documents used in other Unesco networks, in order to determine their applicability to INED. [Note is made of the fact that essentially this same recommendation was reached at the recent EDICO-4 conference.]

C. MULTILINGUALISM ACCOMMODATED

Education-related documents are produced in a variety of languages. Translation of documents and/or their bibliographic records will not always possible. INED should establish the principle that documents of more than 'local' interest should be processed (catalogued, indexed, abstracted) preferably in the 'lingua franca' of English. Local-interest-only documents may be processed in the language in which they are written. It is emphasized that this is an expression of the desirable type of processing for materials of more than local interest and not a mandatory requirement.

D. EQUIPMENT AND HARDWARE NOT SPECIFIED

INED members should not be required to obtain specific hardware or software. That should be left up to the members' abiity and discretion. Rather, standard formats and outputs should be specified that can be arrived at by various means and a variety of equipment.
However, information on hardware and software capable of producing the desired outputs for INED should be more widely available.

E. CO-ORDINATION WITH UNESCO/PGI AND WITH RELEVANT INFORMATION NETWORKS

Throughout the process of designing and developing INED, co-ordination with Unesco/PGI should be a priority management task, both for the purpose of taking advantage of Unesco prior experience in forming information networks (including standards) and taking advantage of PGI's mandate to assist in the development of national information infrastructures (a need with many INED participants).

Similarly, management attention should be paid to relations with other relevant information networks, e.g., EUDISED, for thesaurus co-ordination/compatibility, CODIESEE, APEID, NEIDA, EIPDAS, CARNEID, REDUC and PEPSY.

2. INED DIRECTORY

The existing directory of INED members should be updated and expanded. This should be a unified directory containing relatively complete descriptions of each member institution (including both designated national institutions and other key institutions dealing with educational information at either the national or regional level). Descriptions should include, among other characteristics: name, address, telephone number, contact point, equipment and facilities (including computer), major services available, principal regular publications, software packages used, on-line services used, and any other information deemed useful to the potential user or that could aid the referral process.

3. IBE THESAURUS OF EDUCATION

Whatever the ultimate structure of INED, a unified English-language indexing vocabulary is essential if English is to be the system's lingua franca. The IBE should develop a programme to expand and improve the IBE thesaurus, incorporating terminology from all the education thesauri of the English-speaking countries (e.g., U.S. (ERIC), Australia (ACED), and also the applicable English language international thesauri (e.g., EUDISED, Unesco (subset)).

Rotated and hierarchical displays should be included.

It is emphasized that the resulting effort must provide for the indexing in English of both English-language literature and literature produced in languages other than English. In other words, it should, through its cross-reference structure, tie together varied English translation forms of the same concept.

4. STANDARD INED BIBLIOGRAPHIC DATA SHEET IN PUBLICATIONS OF ALL INED MEMBERS

A standard bibliographic data sheet providing for a basic minimum set of data elements for describing a publication should be developed by IBE. INED member organizations should incorporate such a sheet in all their own publications. In this way, each document will carry its own bibliographic description (including abstract), duplicating of effort will be saved, and standardization objectives will be served.

The development of this sheet should take account of other similar sheets that have already been developed for use in other systems.

5. FORMAL COMMITMENTS OF INED MEMBERS TO THE NETWORK AND OF IBE TO THE INED MEMBERS

Membership in INED should be based on more than a simple 'expression of interest'. IBE should obtain from each INED member a formal letter, committing that institution to participation, support, contribution of publications and data, and acceptance of referrals from fellow members.

members are designated by Govts as INED members.
. needs more specification.

As its part of the bargain, and to establish an atmosphere of quid pro quo, IBE should in turn commit itself to the network in terms of certain resource allocations, in terms of assistance in the development of national centres and national infrastructures, and in terms of the services and benefits to ultimately be realized by INED participants.

6. INED STRUCTURE AND GOVERNANCE

A. Network structure

Networks can be of various types and levels. Organizations can band together for:

A. Referral purposes only
B. Exchange of publications
C. Development of their respective bibliographic data in a common format
D. Exchange of bibliographic data in computerized form
E. Development of a central data base into which members contribute.

These types and levels can also be 'phases' in the progressive development of a network, with individual network members proceeding from elementary levels of co-operation to more complex levels.

IBE should develop a concept paper articulating and expressing the different levels of networking, the possible alternative INED structures, and the options for participation that could be offered within any one structure. IBE's own preference as to what is feasible and desirable, given IBE's resources, should be expressed in this document.

B. INED EXECUTIVE COUNCIL OR BOARD

It is essential that INED members have a say and vote in INED network management and policy. To this end, an elected executive group should be formed that would be responsible for INED governance. The election procedures, terms of office, etc., to be worked out by IBE. Among the responsibilities of this group would be the identification of problems in network operation (including those of satisfying user needs) and the provision of feedback to IBE (both regularly and at the formal meetings of the executive council/board).

> Special note: this executive function could be performed by the existing IBE Council, if that body is willing to take on this function.

C. INED TECHNICAL ADVISORY GROUP

Periodically, technical questions (as contrasted with policy questions) will arise concerning INED activities. A permanent technical advisory group should be formed to deal with such issues and to advise IBE and INED on solutions and proper directions. This group should be composed merely of appropriate staff of INED member organizations. Nomination procedures to be worked out by IBE.

D. ASSURING POLITICAL SUPPORT (AT HIGHEST POSSIBLE LEVEL)

No organization can survive without support from above. Using existing Unesco procedures for obtaining high level political/policy level support, INED should seek to have the participation of its members validated at the highest possible level.

7. CO-OPERATIVE EDUCATION ABSTRACTING SERVICE (CEAS) EXPANSION

The existing CEAS co-operative project, dealing with policy level documents of broad interest, provides a nucleus and an opportunity around which the concept of a central data base at IBE, fed by input from INED members, can be tested.

CEAS should be expanded to include input from all INED members. CEAS, with its limited scope and therefore limited investment of resources, should be the test bed for development and experimentation relating to a possible central data base.

8. INED NEWSLETTER

All networks need some 'glue' to remind them that they are part of a group. Mechanisms that help are executive boards, advisory groups, newsletters, annual meetings, regular services, directories, etc.

An INED NEWSLETTER should be created and distributed at least quarterly. If the IBE management would prefer and if economies would result, this newsletter could be issued as a distinct department, feature, or section of the existing quarterly IBEDOC INFORMATION serial publication.

9. DOCUMENT DELIVERY

INED should explicitly acknowledge that document delivery and the provision thereof is a key element in the success of the network. Citations/references to documents that can't be obtained lead to frustration at all user levels and should be avoided. In all bibliographic records created by INED members, 'availability' should be considered a key data element. This may be availability via the inputting INED member, availability via Unesco or IBE microfiche collections, availability via major provisions (e.g. bill), or availability via reliable third parties (including the specified original source).

10. PILOT PROJECTS

It is recommended that some pilot projects be identified and funded, The expansion of CEAS would be one such project exploring the feasibility of a central data base at IBE made up of contributions of INED members. Another might be the acceptance of data (perhaps CEAS-related data) in machine-readable form from one or more INED members currently in a position to provide it in that form, e.g., Australia, ERIC, etc, and there might be co-operati9on with PGI in improving the educational information infrastructure of specific Member State in need of such development, with the objective of establishing a not non-existent national INED centre for that country. We recommend as a top priority pilot project that IBE fund and advance the installation of the microcomputer version of CDS/ISIS in an appropriate INED member institution. This system should be used for the creation of bibliographic data and the subsequent transmission of this data to IBE in machine-readable form for the projected INED database. One of the many purposes of this project would be for IBE to become completely familiar with the micro version of CDS/ISIS and its potential for extended use by INED members.

GROUP No. 2

DRAFT RECOMMENDATIONS

Chairman Mr W. Rasmussen
Rapporteur Ms D. Clayton
Assistant rapporteurs:
    Mrs S. Cajarville
    Mrs D. Eichfelder
    Miss L. Cordier

Tasks for discussion

INED

Range of services

A: for developing countries

B: for developed countries

(a) What types of models of international networking would be helpful (UNESCO/BIE/DOCINF/4). Which type of support (electronic or other) should be used for transmission of information (UNESCO/BIE/DOCINF/3 para. 13).

(b) How to share resources between developed and developing countries in the fields of:

- information
- expertise
- facilities
- publications (UNESCO/BIE(DOCINF/4 and 3, para. 11).

(c) Which type of personnel is required in the staff of national and regional centres, and which kind of training is required to ensure good co-oepration between the central data base and the national and regional centres (Additional points added to UNESCO/BIE/DOCINF/4 and 3 para. 10).

(d) How can IBE contribute to educational administrators' awareness of the benefits of good information services (UNESCO/BIE/DOCINF/3 para. 10).

2. The meeting began with the election of Mr W. Rasmussen as Chairman and Mrs D. Clayton as Rapporteur, and Mrs D. Eichfelder, Mrs S. Cajarville and Miss L. Cordier as assistant rapporteurs.

3. Discussion concentrated on what the network could do for developing countries, as those most in need of support. It was however felt that these countries had a great deal to offer industrialized countries in the form of feeding in details of policies, priorities, projects, reports, etc. which would not otherwise be disseminated internationally.

4. Exchange of information would by no means be a one-way process from developed to developing countries. There is a great demand for information on education in developing countries among the industrialized states, and also developing countries have a great deal to offer each other by sharing experience.

5. The network's aim should not be to help build up vast collections of documents, but to direct users to where information could be obtained.

6. The discussion then moved on to practical issues concerning the needs of specific countries, which in the case of Senegal for example appeared to be the need for basic textbooks. It was agreed that on the whole it was desirable for such material to be produced by the countries themselves or at least in the immediate region, because of the distinctive cultural elements present in all educational systems. A network such as INED would be invaluable in giving access to information on similar problems faced by other countries, and the solutions applied to them, successful or unsuccessful.

7. Such a network could also do a great deal to increase government awareness of the needs both of their own and other countries. The network as such cannot hope to solve individual problems with ready made solutions but strategies and guidelines for informed decision making could be drawn up in the knowledge of other countries' experience.

8. Problems to be borne in mind:

- lahguage problems;
- that different levels of technological development should be taken into consideration;
- that a world scale network depends on regional scale networks, which in turn depend on co-operation at a national level.

9. In the area of technology, the system should be flexible enough to take into account different levels and rates of technological development within a framework of common standards, with full participation at all levels.

10. IBE should itself be the focal point within the network, directing input and output, and acting as co-ordinator. It was also hoped that IBE might be able to negotiate for access to specialized European and other data bases in order to obtain access to information for members of INED as a special case.

11. The main objective of the proposed network is to underpin educational development programmes both in IBE and Member States. In order to achieve this it is necessary to sensitize policy makers at all levels to the utility and value of the information such networks provide. This could best be done by speedy and pragmatic identification of users of their most urgent needs in order to be able to re-package information to fit their requirements precisely. By providing a valued service to policy makers it would be possible to encourage the development of national centres, which, at the same time as supporting indigenous educational development in developing countries would provide the basis

necessary for regional and international networks. In industrialized countries, they would solve the equally pressing problems of poor communication between existing centres. The group consequently envisaged INED as a network of networks.

12. The group then addressed itself to the question of the type of staff required in the centres, and the training of personnel. While qualified computer staff would be required in the major centres of the network equipped with highly sophisticated technology, in other situations the need was for professional documentalists capable of relating to senior officials at government level. Strategies for training these professionals needed to be devised but had to be tailored to national cultures and structures, so flexibility was of the essence. Problems of communication between computer personnel and educational documentalists were identified as a world wide problem due to the shortage of people equipped to deal both with expanding technology on the one hand and educational documentation on the other.

13. It was difficult to be specific on training needs without defining what the network has required to do, but in-service training rather than taking people away from their centres for long periods was favoured as a method of ensuring that traiing was relevant. This should be complemented by giving staff experience in regional and international centres not only to familiarize them with other procedures and to develop working relationships with colleagues in the network, but also to give them experience of technological developments elsewhere. IBE should survey training programmes available for documentalists in the field of education, and propose courses to be added to existing programmes as necessary.

14. Types and models of networks needed to be examined further (see appendices 2 and 3). Recommendation No. 71 from the 36th session of the International Conference on Education (1977), should be reviewed and perhaps revised in the light of the discussions at this meeting.

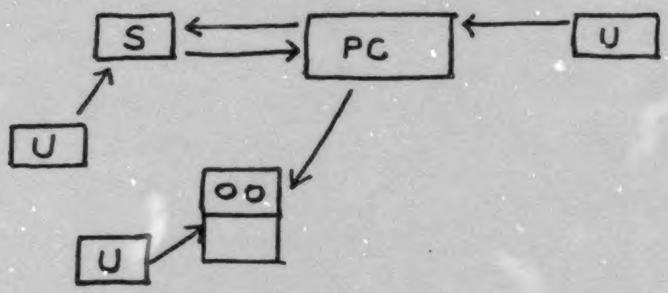
APPENDIX I

Group 2 - List of participants

Mr Z. Al-Rawi, Arab Bureau of Education for the Gulf States (ABEGS)
M. J. Belo, Université d'Angola
Mme S. Cajarville, Unesco, Paris
Mrs D. Clayton, Overseas Development Administration, London
Mlle L. Cordier, IBE
Mr J. Dosunmu, National Library of Nigeria
Mme D. Eichfelder, Unesco, Paris
M. Meriem Faycel, Ministère de l'éducation nationale, Alger
M. S. Faye, Ministère de l'éducation nationale, Sénégal
Mr W. Rasmussen, Ministry of Education, Denmark
Mr J. Richardson, EURYDICE
Mr I. Shatir, Ministry of Education and Guidance, Sudan
Ms Kate Wild, ILO

NETWORKS (presented by Mr. Mahon)

SU — SUPPLIER
U — USER
N — NATIONAL INPUT
PC — PROCESSING CENTRE



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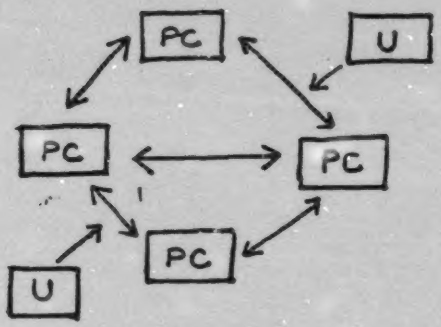
PC
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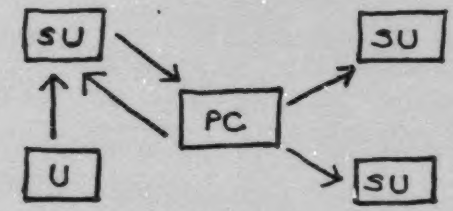
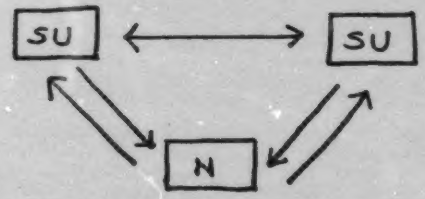
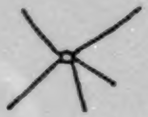
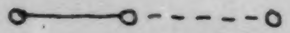
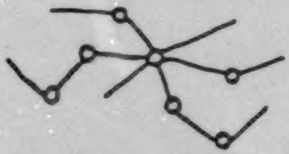
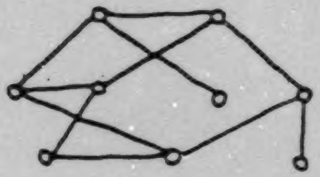
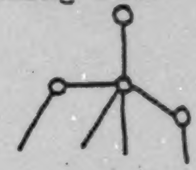
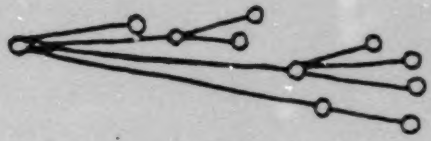
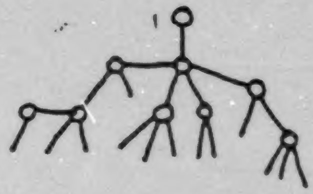
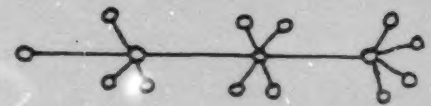
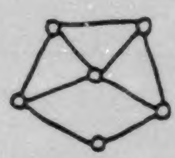
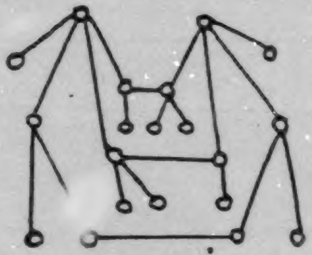
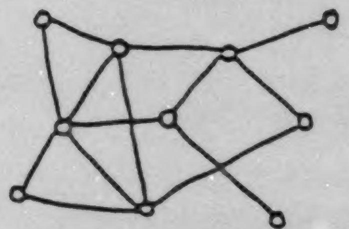
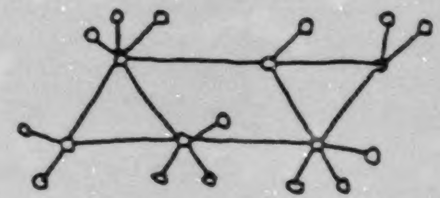


3
COORDINATED



4
COOPERATION

Elements of network theory, presented by Mr. Samuelsen, Stockholm, 1979

INFORMATION NETWORKS EVOLUTIONARY GROWTH	STAGE	COMMUNICATION NETWORKS ORDERLY EXPANSION
 Star as centralized growth kernel.	1	 Point-to-point chaining.
 Spider (mixed-star-tree) with articulations spreading out.	2	 Multiconnected meshwork.
 Fork or claw directed into specific areas.	3	 Multidrop dendritic linkage.
 Tree growth by linkage.	4	 Distributed concentrators.
 Wheel, loop and cycle by short-cut or anastomosis.	5	 Hierarchical switching to clusters.
 Decentralized hybrid formation and coordinated knowledge web.	6	 Composite grid with nodes.

RECOMMENDATIONS OF WORKING GROUP No. 3

Topic: SERVICES AND TECHNOLOGY
(a) The sensibilization and orientation of users
(b) Technological options, norms and standards

(a) The sensibilization and orientation of users

The group decided that this was essentially a promotional and marketing problem, the essential task being to ensure that the potential users of the network were made aware of its availability, its contents, its services, and the means of access. Clearly, the need for this sensibilization and orientation process would be most urgent in those Member States where there has so far been minimal availability of similar networks.

Recommendation No. 1 The major responsibility for promoting and marketing the network to potential end users should be handled by the network's officially designated national institutions. IBE, however, should provide advice on possible strategies to be followed in this field during the projected series of regional training workshops to be held for the staffs of the institutions. (In this respect it would be important to ensure that similar basic information is provided at each workshop). IBE should also provide clear and comprehensive printed guidelines for this sensibilization and orientation process, for translation by the national institutes into local languages and distribution in the participating Member States. In addition, IBE should produce an audiovisual tape/slide instructional and informational package on this process, for local translation and utilization by national authorities.

Recommendation No. 2 Some special emphasis should be placed on developing the role of the Unesco Regional Centres and affiliated institutes in the INED network in order that they may serve as a model for the INED national institutions in the region. The Regional Centres should be complementary to the central co-ordinating unit (IBE); the overlapping of roles and responsibilities should be avoided.

Concerning the availability of printed informational material, the Group came to the conclusion that the range of Directories currently produced and published by IBE provide an adequate coverage but that they should be made available with less delay. Also, as the network evolves, there is a very clear need for all participating institutes to be kept completely up-to-date with information concerning new developments, both concerning INED and also the availability of other data bases on education.

Recommendation No. 3 IBE should ensure that the Directory of Educational Documentation and Information Services is revised and updated on a bi-annual basis and that an information sheet is sent to participating institutes every 2 or 3 months to give news of new developments in INED, including details of additional entrants to the system.

Recommendation No. 4 IBE should issue a comprehensive list of currently available data bases on education, their coverage, and their accessibility.

Recommendation No. 5 The participating institutions should receive comprehensive information on the changes now underway in the education section of the Unesco Bibliographic data base (UNESBIB), its coverage, and the possibilities concerning access to this data base by the participating institutions once all the current reforms have been implemented and the planned complete compatibility and complementarity have been reached in the coming months between the UNESBIB data base and the IBE data base.

(b) Technological options, norms and standards

In discussing various aspects of information technology, the group recognized the fact that a very significant proportion of the designated national institutions in the network do not currently have access to computer facilities and that such centres must rely on manual systems of operation, possibly for some years to come.

Recommendation No. 6 Although many participating institutions are still organized on a manual basis, it is essential that in planning the network, provision should be made from the outset for encouraging computer facilities to become available in all participating institutions. The early computerization of the Regional Centres in this respect should provide some encouragement to national institutions.

Recommendation No. 7 In order to avoid possible costly and time-wasting mistakes in the future, IBE should provide full information on the choice of appropriate compatible software (including micro-computer operating systems, floppy disk formats, etc.) to all those participating institutions requiring such information. The utilization of CDS/ISIS (mainframe and mini versions) should be encouraged.

Although the group acknowledged the fact that there are already numerous educational documentation systems and networks operational or under development in various countries and regions, it felt nevertheless that there appears to be a genuine need for the development of INED in Member States, provided that certain criteria are strictly adhered to.

Recommendation No. 8 INED should be concerned with the questions not currently being answered by other data bases - in other words, it should attempt to fill the gaps. Its unique feature should be that it will aim at being genuinely international in coverage (although at the same time it should try to avoid unnecessary duplication of the inclusion of material already available in other data bases).

Recommendation No. 9 As a priority task IBE should prepare modified work sheets to serve the new needs of the data base, together with comprehensive guidelines for the preparation of abstracts (which in general should not exceed 250 words).

Recommendation No. 10 The material to be included in the data base should include the types of documents already included in CEAS, i.e., mainly official documents (including legislation) on matters concerning educational policy in Member States. The scope of the data base, however, should be considerably expanded to include application-oriented policy research produced by national research teams - the type of reports which often lead to changes and developments in the educational systems of the Member States concerned. In addition, national centres should be encouraged to provide data on material prepared for seminars and conferences by nationals of their own countries (the so-called 'grey literature').

Members: Mrs Valentina Mitina (Chairman)
Mr Toshaki Asakimoro
Mrs Ilse Gerth
Mr Huang Shiqi
Ms Fjora Imberciadori
Ms Anja Korhonen
Ms Nadejda Ebel
Mrs Jacqueline Forestier
Ms Ursula Giere
Mrs Aida Furtado
Miss Liliane Berney
Mr John Hall (Rapporteur)

95. In the general discussion the Irish participant requested a repetition of Recommendation 10 of Group 1's report. He then asked for the following text to be entered in the record with regard to Recommendation 5 of Group 1.

96. The participant from Ireland dissented from Recommendation 5 of Group 1 on the grounds that it failed to identify adequately the responsibility of INED's management in the promotion and development of the INED network.

97. The participant from Nigeria, referring to the Recommendations of Group 3, concerning non-duplication of material in other data bases, pointed out that some countries did not have access to all data bases and that a certain duplication might be needed.

98. The Chairman of Group 3 pointed out that their intention was that where necessary duplication would be carried out and, referring to the wording of the Recommendation, emphasized that the reference was to unnecessary duplication.

99. The observer from the ILO pointed out that one of the Group 2's recommendations had tried to cover this issue by recommending that IBE arrange access to a wide selection of data bases, including those of other UN agencies.

100. The Chairman, referring to Group 1's recommendation on the management of INED, felt that the suggestion that the IBE Council should take it within its scope was not appropriate. She felt that a management structure composed of specialists would be more suitable.

101. The Chairman of Group 1 responded that they had left the matter open, on the understanding that many INED members might be represented in the Council.

102. The Director of IBE pointed out, in regard to the recommendations concerning newsletters, that it was the intention, in the newly formatted IBE newsletter, to include a specific section on information and documentation directed towards INED members. Other sections of the newsletter would deal with other aspects of the IBE programme which would also be of interest to INED institutions.

103. The participant from the USSR wished to raise a point which she felt had not been covered by the working groups and which concerned the delivery of IBE publications. Some attention should be given to assuring that the mailing lists were consistent in order that all institutions receive all publications. The Director of the IBE indicated that rationalization was in hand between headquarters and IBE which should improve the situation.

104. The observer from Denmark expressed his appreciation, as a Council member, for the work of the seminar and the working groups and his satisfaction with a number of innovations in the IBE programme, all of which seems to respond to the concerns of the Council. He was pleased that the questionnaire survey preparatory to the next International Conference on Education had been simplified and that only one questionnaire would be distributed next time.

105. The observer from CEPES asked for clarification on the future role of regional centres. IBE and Unesco staff pointed out that the Regional Offices and specialized centres of Unesco played an important role in the collection, analysis and dissemination of information and that their role would be integrated into the IBE and Unesco network. Furthermore, they had a major role in encouraging and developing information centres in countries of their region.

106. The observer from Denamrk echoed the sentiments expressed and emphasized the need for close co-operation between regional centres for their mutual benefit. He referred to the situation in Europe where there were quite a number of regional activities, and he felt that the experiences gained from those could be extended to other parts of the world.

Distribution: limited

UNESCO/BIE/DOCINF/1/Prov.
Geneva, April 1985
Original: English

UNITED NATIONS EDUCATIONAL,
SCIENTIFIC AND CULTURAL ORGANIZATION

INTERNATIONAL BUREAU OF EDUCATION

MEETING OF EXPERTS IN EDUCATIONAL DOCUMENTATION AND INFORMATION

International Conference Centre
Geneva, 20-24 May 1985

Provisional Agenda and Timetable

Agenda

1) Opening of the Meeting by the Director of the IBE

2) Election of Chairman, Vice-Chairman and Rapporteur

3) Adoption of the Agenda and Timetable

4) Presentation and discussion of second working document and three information papers

5) Presentation of third and fourth working documents and fourth information document

6) Group discussions

7) Conclusions and recommendations

8) Closure of the Meeting

Timetable

DAY I

Monday 20 May

10.00 - 11.00 - Opening; Adoption of the Agenda and election
11.00 - 11.30 - Interval
11.30 - 13.00 - Presentation of 2nd working document (DOCINF/2) and discussion
13.00 - 14.30 - Lunch
14.30 - 16.00 - Presentation of LAD and PGI documents (DOCINF/INF/1, 2 and 3) - discussions
16.00 - 16.30 - Interval
16.30 - 18.00 - Continuation of discussions and conclusions

DAY II

Tuesday 21 May

9.30 - 10.30 - Presentation of 3rd and 4th working documents and 4th information document (DOCINF/INF/4)
10.00 - 11.00 - Division of participants into four working groups
11.00 - 11.30 - Interval
11.30 - 13.00 - Group work
13.00 - 14.30 - Lunch
14.30 - 16.00 - Group work
16.00 - 16.30 - Interval
16.30 - 18.00 - Group work

DAY III

Wednesday 22 May

9.30 - 10.30 - Plenary
10.30 - 11.00 - Interval
11.00 - 13.00 - Group work
13.00 - 14.30 - Lunch
14.30 - 16.00 - Group work
16.00 - 16.30 - Interval
16.30 - 18.00 - Group work

DAY IV

Thursday 23 May

9.30 - 10.30 - Plenary
10.30 - 11.00 - Interval
11.00 - 13.00 - Group work
13.00 - Lunch

Thursday 23 May p.m

Free

DAY V

Friday 24 May

10.30 - Presentation and discussion of group recommendations.
Approval of recommendations

Distribution: limited

UNESCO/BIE/DOCINF/2
Geneva, April 1985
Original: English/French

UNITED NATIONS EDUCATIONAL,
SCIENTIFIC AND CULTURAL ORGANIZATION

INTERNATIONAL BUREAU OF EDUCATION

MEETING OF EXPERTS IN EDUCATIONAL
DOCUMENTATION AND INFORMATION
International Conference Centre
Geneva, 20-24 May 1985

Present Situation of Unesco Resources in Educational Documentation and Information and its Future Development

INTRODUCTION

The documentation and information activities developed by the Education Sector of Unesco are numerous and varied. They include not only those undertaken in Headquarters, but also in the Regional Offices and other units of the Education Sector, including the International Bureau of Education (IBE).

This document provides a broad description of the different services which are now offered by Unesco in this field, excluding those of IBE, which are described in a separate document.

One of the characteristics of the Unesco documentation and information services in the field of education is that during the past years they have been developing somewhat independently with less than optimum importance being given to the harmonization of activities and standardization of procedures. Therefore, when in 1979 the decision was taken by the Director-General to develop [illegible] Unesco integrated documentation network, a substantial reorganization of the available documentary material, of the working procedures and of infrastructures was required.

Thus, following the recommendations made by a consultant, Mr. Meyriat, in 1978, based on a global analysis of the status of documentation services in Unesco, as well as on the basis of the recommendations made by a group of Unesco specialists in 1981 concerning specifically the Education Sector, the Director-General recently decided to integrate the documentation centres of the Education Sector at Headquarters into one larger centre which will serve the entire Sector. As a result of this operation, the new centre will become one module of the Unesco integrated documentation network, each component of which will rely upon identical computer-assisted techniques and procedures for processing its bibliographical data. Such an approach will largely contribute to the development of the 'education' component of the Unesco documentary data base.

The above-mentioned reorganization will be followed by other measures aiming at improving coordination among such a unified documentation centre and the other decentralized centres existing within the Education Sector in Regional Offices, International Bureau of Education (IBE), International Institute for Educational Planning (IIEP), European Centre for Higher Education (CEPES), etc. It will also facilitate the exchange of information with the documentation centres in the field of education existing in other organizations - national, regional, international, non-governmental, governmental, inter-governmental. This would allow, for example, the production of a unified list of periodicals related to education, to make entirely compatible, the Unesco-IBE Thesaurus and the education section of the Unesco Thesaurus.

During the meeting, the participants are expected to make suggestions and recommendations concerning the future development of Unesco information activities in the field of education, having particularly in view the improvement of services provided to Member States, one very important aspect of which would be to improve Member States' awareness of the existing services.

It can thus be understood that Unesco maintains a great variety of documentation and information activities in the field of education. To what extent do these existing activities/services reach all potential users in Member States? Unesco publications and documents in the field of education are an important component of its overall information services. Is this material fulfilling its role in Member States? What measures could be taken so that Unesco could reach in this specific field the right people at the right time? We do hope that some answers to these fundamental questions will result from the proceedings of this meeting.

PART ONE - Unesco Headquarters

A. Services made available to Member States and personnel of Unesco by the Division of Primary Education, Literacy and Adult Education and Education in Rural Areas (ED/PLA) - Documentation Centre

Description and functions

1. The ED/PLA Documentation Centre comes under the Division of Primary Education, Literacy and Adult Education and Education in Rural Areas. The latter is made up of four sections as follows: the Literacy Activities Section, the Adult Education Section, the Rural Development Section and the Primary Education Section. The principal functions of the Centre are to collect, process and store specialized information of all kinds in the areas falling within the purview of the respective Sections so as to provide the Programme's specialists with the information they require for implementation of the Programme, and the Member States with technical information in the above mentioned fields.

Fields: Adult education: Community development, worker education, senior citizens, etc. Literacy: Functional literacy, literacy methods, literacy programmes, literacy campaigns, reading material for post-literacy training, etc. Rural development: Education for rural development, rural sociology, rural zones, etc. Women's education: Education and employment opportunities, access of women to teaching and scientific training, etc. Migrants: Education and training of migrant workers and their families. Primary education.

Document collection

2. The Centre has a collection of its own oriented to the disciplines covered by the ED/PLA Division. It also has a collection of reference works.

Materials handled:

- Publications from Unesco, the Regional Offices and the field offices; conference reports; working documents of certain conferences; case studies; mission reports; technical studies; lists of specialized agencies of the United Nations family.
- Documents published by the ED/PLA Division.
- Publications of Member States, non-governmental organizations and other national and international organizations; national

literacy programmes and/or adult education programmes; research papers; reports of national and regional conferences; reading textbooks.
- Publications of specialized institutions or universities, including basic works, studies and annual reports.
- Technical periodicals which the Centre receives free of charge.
- Technical bibliographies, abstracts and monographs

Services provided by the Centre

3. - Upon request, the Centre sends lists of documents available without charge relating to the documents published by the ED/PLA Division. It also provides users upon request with a list of documents on literacy offered for sale by Unesco and in commercial book stores.
   - Specialized bibliographies are provided upon request to Member States, to programme specialists, to experts working in the field, to specialized organizations and correspondents (teachers, students, etc.).
   - Documents produced by the Division such as 'Surveys and studies' on adult education and literacy, 'Seminar reports and studies' dealing with rural development, as well as case studies, conference reports, conference working documents, research papers, etc. are sent to the heads of conferences held away from Headquarters, to specialized institutions and organizations in Member States, to permanent delegations, to programme specialists, to international institutions, and also, upon occasion, to outside users.

Future activities

4. The Centre is planning, if time allows, to carry out the following activities:

   - to develop, jointly with the Library of Unesco and the IBE, a more refined list of descriptors in anticipation of the computerization of the Centre's collection.
   - to analyse every specialized periodical and index selected articles, jointly with programme specialists.
   - to resume compilation of acquisition lists of documents received by the Centre free-of-charge.
   - to set up files by subject based on documentary research, with specialized bibliographies.
   - to reclassify the files of technical studies acquired upon request of the programme specialists and the bibliographical references which are accessible through the CDS/ISIS system.

Dissemination and exchange of information

5. (a) Publication of the quarterly bulletin. 'Adult education: information notes' in English, Arabic, Chinese (through the China National Commission), Spanish, French and Russian.
First published in 1973, the bulletin is distributed free-of-charge to 18,500 subscribers throughout the world.
'Literacy: a newsletter' has been incorporated into this bulletin.

In 1985, circulation will be increased to 20,000 as a result of the Fourth Adult Education International Conference.
Information on adult education activities is presented under the following headings: communiqués, notes and news, new series of publications, forthcoming events, and bibliographic information.
In addition to covering these new developments in the Unesco Secretariat, the bulletin contains information on activities of Member States and non-governmental organizations (NGOs) in the field of adult education of general interest to its readers. In addition, it follows the development of ideas and the changing role of adult education confronted with major problems of the present day, such as unemployment, poverty, health services, the rights and responsibilities of the citizen, rural development, etc. For each item of information, a contact address is given in order that adult educationalists in various parts of the world may communicate among themselves.
In this way, the bulletin promotes the development of an international network for the exchange of ideas and experiences in the field of adult education, permitting its readers to have better access to information and documentation.

(b) Publication of international directories on adult education

- Directory of national adult education co-ordinating bodies
- Directory of adult education training and research institutions
- Directory of adult education periodicals
- Directory of adult education documentation and information services.

These directories are continually updated and revised in accordance with information received by Unesco, principally from those receiving the bulletin 'Adult education: information notes'.

(c) Publication of Terminology of adult education. A glossary of technical adult education terms, prepared by Unesco jointly with the IBE. In three languages: English, French and Spanish. Each term is defined and compared with corresponding terms in the other two languages. The corresponding terms in Arabic and Russian will follow upon completion.

Support to Member States, NGOs and specialized institutions

6. The ED/PLA Information and Documentation Services provide technical support to Member States, particularly the developing ones, as well as to NGOs and specialized institutions in order to assist them to develop information services and documentation centres at regional and national levels.

National adult education directories are being developed in a number of countries, in some cases with Unesco assistance.

Periodicals and information notes on adult education
Unesco has assisted in the launching or in the publication of these periodicals at regional and national level.

Documentation centres and services
Unesco offers assistance to specialized organizations and institutions in the development of their documentation centres and services.

Address files

7. Unesco keeps a file containing more than 15,000 names and addresses as follows:

- Persons and organizations involved either directly or indirectly in adult education
- Adult education periodicals
- Adult education documentation centres
- Adult education co-ordination bodies
- Adult education training and research institutes

Each address is indexed with descriptors showing where possible the type of work done by each organization or person (literacy, health services, community development, etc.) and the type of institution (university, ministry, foundation, research centre, etc.).

The file is continually updated.

The names and addresses are furnished by National Commissions, specialized institutions, Unesco experts in the Member States, field experts upon return from mission, participants in conferences, specialists visiting Unesco Headquarters, by the periodicals and 'information notes'.

B. Documentation and information services made available to Member States and personnel of Unesco by the Division of Educational Policy and Planning, (EPP) and the Division of Financing of Education (EFD) - EPP/EFD Documentation and Information Centre

8. Within the framework of major programme IV (Formulation and application of education policies) of the approved Programme and budget for 1984-1985, the EPP/EFD Documentation and Information Centre offers services in the following areas to all those interested: educational policy, planning, administration and financing, educational equipment and materials and the construction of facilities, and as a recently added facility, pre-school education and anti-discrimination measures in education.

9. The Centre was created in 1964 with the aim of collecting, processing, proposing and distributing specialized information in the above mentioned fields to educational specialists working in the Unesco programme. It is designed to provide them with the documentation necessary for the programme's implementation. To this end, the Centre seeks to collect the economic and educational development plans of the Member States, their legislative texts on education, Government documents on educational policy development and financing, and all regional and international documentation on these questions. This is done either upon direct request to the Member States (an official letter

being sent once every two years), through the intermediary of regional offices or experts, or through the purchase of publications, microfiche, periodicals and other materials. Individual accessions average 1,500 per year, representing an annual growth of 10% in the documentation available.

10. The Centre distributes specialized information automatically and upon demand to Member States, Regional Offices and experts. The major portion of this is prepared by Unesco in particular in the EPP and EFD divisions. This material includes the Reports and studies series and Training materials from EPP, the EFD Occasional papers and documents emanating from the regional conferences of Ministers of Education. The Centre also distributes bibliographical references, lists of accessions, catalogues and specialized bibliographies. Since the beginning of 1984, the EPP/EFD Centre has distributed to National Commissions, ministries, universities, research institutes and specialists approximately 5,000 documents in response to written demand. In addition, 4,800 documents were placed on automatic distribution. The Centre replied to 1,657 requests for documentation from the Secretariat. It was host to 2,079 visitors, of whom 209 were engaged in external research and 44 were trainees, consultants or experts.

11. Currently, the Centre's collection comprises 15,000 documents (not including extra copies) consisting of studies, reports, publications, conference papers, dissertations, reviews, journal articles, documents on microfiche and slides. The principal sources are the governmental agencies of Member States, Regional Offices, specialized institutions (e.g. the IIEP, the IBE and the Hamburg Institute), international organizations such as the OECD, the Council of Europe, the Organization of African Unity, the large universities, international finance development institutions such as the World Bank and the African Development Bank, national institutes and specialists, specialized periodicals, publishing houses and international education information bases such as ERIC.

12. In addition, the Centre produces materials on its own. These include a list of monthly acquisitions accompanied by an annotated bibliography of the principal works and articles mentioned, a catalogue of development plans (revised every two years), a list of 'Reports and studies' indexed and revised annually, a bibliography of the bibliographies available at the EPP/EFD Centre, a list of Unesco publications on school building, and various bibliographies compiled upon the individual requests of specialists for their studies (see attached tabulation).

13. Although the Centre utilizes the classical cataloguing and indexing techniques in accordance with a classification plan and specialized descriptors (its file comprises 60,000 cards arranged by subject, country and author), it also began a few years ago to computerize and microfilm its collection. The computerization was largely effected in relation to the documentation on educational building and equipment using a specialized thesaurus, periodically updated and revised. Using the Unesco thesaurus as a base, the Centre has developed a list of technical terms for the other areas within its purview so as to

facilitate when the time comes, the computerization of its entire collection. In addition, the bibliography of the Centre's bibliographies and the catalogue of educational programmes have been developed using the 'WYLBUR' word processing system.

Future activities

14. The Centre plans to continue and complete the computerization of its entire collection and to consolidate the current lists used by the various sections for distribution of information to Member States into one central list, permitting wider distribution of the documents produced.

In addition, the Center has proposed that the 23 C/5 (Unesco programme and budget, 1986-1987) include the following functions:

- preparation of a training module on the role of information in educational planning, administration and financing, as well as in school construction;
- revision and updating, jointly with IIEP and IBE, of an educational planning and administration terminology;
- development of a semi-annual bibliography of important studies and books, making it possible to follow the latest developments in educational planning and administration;
- development of a selective bibliography of basic studies on the methodology of educational planning and administration

Educational services provided by the divisions concerned for the Member States

Reports and studies series (EPP)

15. In accordance with the resolutions and recommendations of the nineteenth session of the General Conference, it was decided to distribute more widely the abundant technical information produced by Unesco in the areas of educational policy, planning and administration and school construction. To this end, the Division of Educational Policy and Planning (EPP) compiled abstracts of documents generated in connection with seminars, the preparation and evaluation of projects, planning missions and requests of Member States. This series, entitled 'Reports and studies' is oriented to subjects or countries. It is intended for extra-mural participants in the programme, experts, the Regional Offices, national institutions and all persons involved or interested in these areas. To date it comprises 218 titles. These studies are distributed as follows: (a) automatically, to the Regional Offices, experts, and national institutions and specialists whose activities come within the field of interest of EPP (the automated list contains 2,000 addresses); and (b) by the Centre on a selective basis to the organizations and national experts who have submitted requests upon receipt of the annual revised list of titles.

Training materials (EPP)

16. The EPP Division also makes available to Member States materials for the training of personnel engaged in educational planning,

administration and in the construction of schools. This documentation is made up of 17 series in three languages, each series consisting of four to six educational modules. In this connection, it should be pointed out that the series to be produced will be improved through tests and experiments. This testing and revision procedure will be a continuing task of the EPP Division working together with regional specialists and institutions in these fields. The Centre also distributes the materials to experts, Regional Offices and other Unesco field units, as well as to interested national institutions.

Conference papers (EPP)

17. The Regional Conferences of Ministers of Education give rise to important working papers prepared by the Secretariat jointly with the Regional Offices and the Member States on the development of education in each region, pertinent statistics and Unesco co-operation in this area. These documents are widely distributed prior to and during the conference to interested Member States and participants. The final report is then automatically distributed by the Secretariat to all the Regional Offices, delegations, Member States and National Commissions. In addition, a summary is issued in the Educational studies and documents series, also for wide public distribution. One example is the document Education in the Arab States in the light of the Abou-Dhabi Conference, 1977. Paris, Unesco, 1980.

Advisory services provided by Member States in the area of educational policy and planning (EPP)

18. Reports are written following the multi-disciplinary missions in one or another specific educational field which are organized at the request of a government. Each report presents the results of the mission and the problems encountered as well as recommended studies or action in each field. Distribution of such reports is limited. They are sent to the government involved and, following this, and with authorization from the latter, to other interested parties upon request. Eighteen reports have appeared in this series under the code ASMS/ED/EPP (Advisory Services to Member States).

Sectoral studies (EFD)

19. These documents for limited distribution are prepared for governments under a co-operation agreement between Unesco and the World Bank. They are produced following a mission to the country and present the Secretariat's conclusions upon examination of the information collected. They are distributed in accordance with a restricted list of addresses at Headquarters and in the field. To date, 127 sectoral studies have been carried out.

Occasional papers (EFD)

20. The articles contained in this collection deal with a whole range of difficulties and problems which the governments of developing countries must face in the daily administration of educational programmes, particularly with regard to the costs and financing of

educational projects. These articles are edited by officials of the Division of Financing of Education, often following long missions conducted in the Member States during which they have been confronted with these problems and have tried to solve them together with the competent authorities. To date, eight occasional papers have been produced for distribution to the Regional Offices, experts and interested governments.

21. Also worth noting in connection with information services provided to Member States is the Notes and Comments series, published within the framework of the Unesco-Unicef Co-operative Programme and distributed to approximately 1,500 users. To date, 152 issues have been published, all of which are devoted to the child, the family and the community.

The EPP/EFD Documentation Centre constitutes a clearing house for documentation and information between these two divisions. It receives the information produced, arranges for its filing, dissemination and circulation, and offers library and advisory services.

C. Services placed at the disposal of Member States and personnel of Unesco by the Division of Structure, Content, Methods and Techniques of Education (ED/SCM) - Documentation, Information and Demonstration of the ED/SCM Division

22. Demonstration, information and support services with regard to educational content, methodology and techniques are provided by a Centre with multimedia resources.

The Centre provides support for specialists at Headquarters, national and international experts, operational projects, innovation networks and other visitors. Its activities include:

- collection and dissemination of educational documentation (studies, research reports and audiovisual materials)
- the compiling of bibliographies
- the updating of documentation and various collections including that of an audiovisual documentation on innovations in methodology
- the dissemination of documents produced by the ED/SCM Division

The functions of the Centre are as follows:

23. (a) To provide information and documentation to the following organizations and individuals:

- ED/SCM programme specialists
- specialists working in the same field in Regional Offices and in operational projects
- specialists of the ED Sector and other Sectors
- consultants
- other United Nations agencies
- specialized institutions and research workers

(b) - manage a specialized documentation collection in the field of the ED/SCM programme activities

(c) - disseminate documents produced by SCM
(d) - maintain liaison and exchange information with the Regional Offices and specialized institutions
(e) - contribute to the development of the regional networks of educational innovation

Centre activities on behalf of Member States

24. Every year, the Centre distributes in 5,000 copies, a list of approximately 30 documents produced by the Division in the following educational fields:

- the administrative, legal and economic aspects of education
- methodology and practice
- distance education and EDP
- training industries and educational materials
- the psychology of learning
- innovative educational programmes and networks
- pre-school education
- primary, secondary and basic education
- continuing evaluation
- setting up educational programmes
- language instruction
- physical education
- aesthetic education
- special education
- educational research

25. The above list together with the documents produced by the Division, of which 30,000 copies are distributed every year, is sent automatically or upon request to the following organizations:

- National Commissions
- Regional Offices
- specialized institutions
- educational research centres
- educational documentation centres
- universities
- educational technology, special education and pre-school education centres and institutes
- operational projects

26. The Centre also replies to written requests in the areas of teacher training, higher education and population education. It also sends upon request, bibliograhic references, catalogues and documents produced by the Regional Offices and specialized institutions.

In addition, the Centre complies with requests from the Secretariat, plays host to external visitors, research workers, consultants and trainees. The special situation which arose in 1984 as a result of a fire on the premises prevents us from providing exact figures on the requests received.

The Centre is planning to expand the Division's mailing list in order to improve dissemination of its documents.

D. Services put at the disposal of Member States and personnel of Unesco by the Division of Science, Technical and Vocational Education (STE)

27. As far as technical and vocational education are concerned, the development of information systems has been a continuous theme in the programme over the last eight years. A number of activities have been carried out to improve the infrastructure of information services, including a feasibility study which was used as a basis for a Guide on the organization and the operation of documentation and information centres and services for technical and vocational education, which exists in English, French and Spanish and which describes a scheme for the classification of information in this field. A specialized thesaurus for technical and vocational education has also been developed, as well as a World directory of selected research and teacher training institutions in the field of technical and vocational education. In close co-operation with the IBE, a guide to the Terminology of technical and vocational education was published in English/French in 1978 in the IBEDATA series; a multilingual version of the guide (English/French/Spanish/Arabic/Russian) will be available in a few weeks. In addition, an Information bulletin on technical and vocational education is published semi-annually. The regular inclusion of 'country profiles on technical and vocational education' in future bulletin issues is foreseen, as is publication of a collection of country profiles along with a directory of the principal administrative officers for technical and vocational education in more than 100 Member States. Additional future activities include the compilation and publication of additional directories and annotated bibliographies on specific aspects of technical and vocational education (a bibliography on technical teacher education is currently in preparation) and the development of a multilingual technical dictionary based on technical illustrations which will be easily adaptable to other languages and which aims to assist Member States in unifying their technical terminologies.

Information Services in Science and Technology Education

28. (i) A Network has been established for the exchange of information among science and technology education institutions throughout the world. Information concerning the activities and publications of, and provided by, each of the institutions designated by the Member States to participate in the network has been printed in a Provisional directory and disseminated to the participating institutions. A Revised directory, updating, correcting and adding to this information, is planned to appear in Spring 1985. It is foreseen to enlarge the scope of the network by (a) issuing a quarterly information note, which would be circulated among network members, and (b) holding a series of regional or sub-regional meetings on selected topics in which the member institutions would come together. A computer is foreseen to assist with the activities of this network. (ii) Specialized mailing lists have been compiled within each of the scientific disciplines of the Science Education Section of ED/STE. Generally, they consist of some 500 science educators and science education institutions. By utilizing descriptors, subsets of these lists are available in order to better match the type

of information to be dispatched with the requirements of the recipients. As an example, included in the mathematics education list are 250 mathematics education journals, which are selected for mailings of books and proceedings with enclosed letters encouraging the editors to publish reviews. Not only are Unesco-generated publications and documents disseminated through these mailing lists, but so is science education information available to Unesco, frequently as a result of support contracts for meetings and newsletters.

Information and Documentation Centre in Science and Technology

29. STEIC, the Science and Technology Education Information and Documentation Centre, deals with each of the fourteen different subjects of ED/STE. One person deals in general with the classification of documents in the UDC system, and receives visitors and staff members seeking special information relating to the topics of the centre. During the past few months, functioning has been somewhat curtailed owing to the fire that affected the premises of the centre. The circulation of information is done mainly with the library.

Once computerization takes place, it will help the functioning of the centre considerably, in the classification of documents and the provision of services to visitors of professionals, as well as in ensuring a better circulation of information through and within the library.

But even when the centre is incorporated with the others, we think we will still collaborate, as was done in the past, in exchanging information concerning the specialized topics of our Division.

Information Services in Environmental Education

30. The information activities in this field are: (i) A computerized data base on environmental education, composed of files on institutions and organizations, projects, activities and periodicals concerned with environmental education. It periodically produces three directories: International directory of institutions active in the field of environmental education, containing detailed information on 650 institutions, printed and distributed in 1981 in English, French, and Spanish. The information is continuously being added to and computerized for the next version of the directory, to be printed in 1985 in English, French and Spanish. A Directory of environmental education, projects and activities in environmental education, containing descriptions of some 300 projects, is in preparation and will appear in 1985 in English, French and Spanish. A Directory of environmental education periodicals, containing 200 items, will be printed in English, French and Spanish in 1985. (ii) A Thesaurus of environmental education terms presents a classified vocabularly of 1,200 terms in English. The terms are related to each other and also complementary to the Unesco Thesaurus, which comprises many terms involving education and environmental sciences. Thus, some 500 terms pertaining to environmental education literature have been identified and grouped according to subject content. The Thesaurus can serve as an indexing tool for environmental education publications and is of immediate use for abstracting library acquisitions and full-text description indexing of projects and

activities. It will be disseminated to specialized institutions and organizations.

E. Educational services placed at the disposal of Unesco Member States and personnel by the Operational Programme Division (OPS)

31. Over the past few years the ED/OPS Division has produced a certain number of guides and methodology, audiovisual presentations to develop awareness and case studies based on experience acquired during the implementation of the operational programmes in the field of education.

The titles of these documents are as follows:

(i) Guide for the preparation of technical co-operation projects in education (reference ED-79/WS/116, 1979, available in English, Arabic, Spanish and French);

(ii) Evaluation of international technical co-operation projects in education (reference ED-79/WS/159, November 1979, English, Arabic, Spanish and French);

(iii) Computerized management of operational projects

(a) Guide for the computer-assisted management of operational activities in the field of education - (P.M.I.S.) (reference ED/82/WS/17, December 1981, English and French);
(b) P.M.I.S.: a management information system developed by Unesco to strengthen the execution of the operational programmes. Unesco evaluation newsletter, vol. 1, no. 2, June 1982, p. 9-12.
(c) Audiovisual presentation: P.M.I.S. - For the management of operational activities of Unesco, (duration: 35 minutes, 76 sildes). This presentation which is available in English and French, is accompanied by a booklet (reference ED/84/WS/60, September 1984).

(iv) Computerized management of national education systems

(a) The computerized management of educational systems: an audiovisual presentation (duration: approximately 35 minutes, 80 slides), available in English, Arabic, Spanish and French.
This presentation is supplemented by the following three documents:
- accompanying document (reference ED/79/WS/118, October 1979);
- scenario (reference ED/79/WS/157, October 1979);
- users' handbook (reference ED/79/WS/155, October 1979).

(b) The computerized management of educational systems: case studies
An audiovisual presentation describing two concrete cases of application of these techniques at national level within the

framework of two operational projects (duration: approximately 60 minutes, 109 slides).
This audiovisual presentation is available in English and French and is supplemented by:

- an accompanying document describing the methodological aspects as applied to these two concrete cases;
- a scenario.

(v) Technical co-operation in education in Africa: review and prospects
(reference ED-84/WS/47, July 1984, available in English, Spanish and French).

In addition, the various reports produced periodically by computer within the framework of the PMIS are more in the nature of working documents for internal use, the dissemination of which is limited to those employees who are directly concerned.

F. Services put at the disposal of Member Countries and Personnel of Unesco by the Division of Equality of Educational Opportunity and Special Programmes

32. Under the Section of Education for International Co-operation and Peace a systematic distribution is made to participating institutions in the Unesco Associated Schools Project (establishments at the pre-primary, primary, secondary, vocational and teacher-training levels of education).

In addition to material produced by the Section specifically for the Project (bulletin International understanding at school; information letter A glimpse of the Associated Schools project; recent publications Education for international co-operation and peace at the primary school level, World problems in the classroom (Educational studies and documents, 41), Apartheid: a teacher's guide), regular distribution is made of other Unesco material (Unesco courier, Unesco features, Prospects, Panorama, Connect, Book promotion news, Objective literacy), as well as material from other specialized agencies:

Unicef - Unicef news, Ideas forum
UN - Annual UN Day poster, booklet UN Day: suggestions for speakers
UNEP - Uniterra

Material produced by Unesco's Office of Public Information is also distributed.

As of 1 December 1984, over 1,800 institutions in 90 Member States were participating in the Project.

33. In order to promote, encourage and support actions to assure the equality of educational opportunity for girls and women, the Section of Equality of Educational Opportunity for Girls and Women has established

six mailing lists through which a systematic distribution of relevant Unesco documents and publications is being kept active (during the first nine months of 1984, seven documents have been distributed).

At present, these lists have all together 681 addresses throughout the world. This number continues to increase. PART TWO - Regional Offices and Other Agencies

PART TWO - Regional Offices and Other Agencies

G. The Unesco Regional Office for Education in Africa (BREDA) - The Documentation/Information System

Introduction

34. This unit was first planned as a library and documentation centre with the function of providing documentary support to the Programme's specialists. It was restructured and reorganized at the time of its integration into the over-all multi-media structure in 1980, receiving a more pronounced orientation to documentary research and information activities *per se*.

In the current structure of the Regional Office, the Multi-Media Documentation Centre (MDC) has the function of providing support to the Office's programmes as a whole.

Written documentation

35. The written documentation of the MDC is centralized in a library. The general profile of the existing collection may be described as follows:

- a 'Reference material section' which includes the usual reference works: dictionaries, encyclopaedias, yearbooks, directories, guides and various bibliographies;
- a 'Books' section which consists largely of the Organization's publications and is therefore concentrated in the areas of Unesco's competence, namely education, science, culture and communication;
- a 'Periodicals' section consisting of Unesco periodicals and other periodicals on sale or free of charge dealing with the fields of competence of Unesco;
- a 'Files' section comprising:
  - (a) 'Files by country' of the region;
  - (b) 'Files of functions and subjects, which are oriented to subjects related to Unesco's field of competence. Most of these have to do with education;
  - (c) The Executive Council Documents Collection (Ex) and the General Conference series (G.C.).

Functions

Acquisition of documentation

36. This service centralizes all acquisition operations of the Regional Office. The basic lists for reference materials, books and periodicals are established according to existing priorities in the fields of educational, cultural and scientific policies of the 44 Member States in the African Region. The acquisition procedures in general involve programme specialists in the choice of titles.

Information processing

37. This service is responsible for the processing of the entire collection when it is received. The latter is broken down by order of importance into Unesco publications, including books, periodicals and various series emanating from the Regional Offices and affiliated institutes, and books and periodicals produced by commercial publishing houses. Some titles, mainly periodicals, come from governmental, non-governmental, regional and international organizations.

The actual processing consists of the following operations:

- bringing the documents together
- document registration
- stamping
- cataloguing, indexing and analysis
- updating of various existing catalogues
- systematic catalogue
- subject catalogue
- author catalogue
- title catalogue
- geographical catalogue

For periodicals, processing is limited to a regular updating of the Kardex.

The reorganization of the written documents collection calls for a reorientation of the Centre's operations in order to improve the documentation services available on site. This will involve greater in-depth analysis of periodicals, studies and technical reports through intensified documentary research, scanning and analysis.

Information dissemination

38. To date, the only instrument used for dissemination has been the MDC acquisitions list. This list is a systematic record of all titles received during the quarter.

As far as publications in general are concerned, an MDC unit ensures distribution of the various titles using an exhaustive mailing list. Distribution is effected for publications produced on the premises such as Educafrica and Alpha 2000, various brochures and booklets, reports of meetings organized by BREDA, etc.

The distribution unit also functions as a regional distribution point for publications of Unesco Headquarters and affiliated institutes to the Member States.

The Centre's clientele

Direct users

39. As already mentioned, the MDC is one of the support services of BREDA. Its most immediate users are the programme specialists. The collection helps them to implement the various programmes for which they are responsible.

The Centre is available for local consultation to selected visitors, which include the heads of national services whose work comes within the Organization's purview; international organizations located at Dakar with whom the MDC exchanges information and documentation; and individual users in general, including teachers, university students and faculty engaged in academic research.

The MDC also receives individual consultants who happen to be visiting the BREDA en route to one or more Member States in the region.

Indirect users

40. In most cases, it is a question here of requests for information and documentation by correspondence. Generally, these requests come from specialized institutions or individuals in Member countries. The service requested is generally bibliographic or documentary in nature.

Some requests, which are just as frequent, come from institutions and individuals in other regions of the world. This proves once again that BREDA is one of the principal sources of information on education systems of countries of the African region.

BREDA, as one of the designated focal points of the International Network for Educational Information, remains in continuous contact with the various far-flung structures of the Organization, including Headquarters, the Regional Offices and affiliated institutes.

The Information Unit of the Network of Educational Innovation for Development in Africa (NEIDA)

41. The NEIDA Co-ordination Unit plays the role of a central data collection on educational innovations for development. It collects information from national institutions, national co-ordination centres, associated projects and associated regional institutions. It processes and disseminates this information by means of written media such as periodicals, series and monographs. The documentation collected is arranged under two headings:

- by member country
- by function and subject

The Statistical Data Bank on Education in Africa

42. Through this bank, the Regional Office is in a position to obtain and disseminate on a continuing basis, current information on the development of education in the Region, and to use this information in the performance of its work, as in the preparation of missions, reports, studies, conference papers, meetings, training programmes, etc., as well as to provide information to Member States and interested organizations. The Bank is preparing to disseminate on a regular basis, selected current data and indicators which, together with the publications issued

by the Unesco Office of Statistics, will help meet information needs in this area.

The Regional Office data bank receives its information from the following sources:

- official documents supplied to BREDA by Member States
- data stored in the statistical data bank at Headquarters
- replies of Member States to questionnaires sent to them by the Regional Office.

H. Unesco Regional Office for Education in Asia and the Pacific - Educational Documentation and Information Service (EDIS)

EDIS and its collection

43. As one of its functions, the Unesco Regional Office for Education in Asia and the Pacific (ROEAP) provides clearing house services to the Member States in the Asia and Pacific region. Its area of service now comprises the following Member States: Afghanistan, Australia, Bangladesh, Bhutan, Burma, China, Democractic Kampuchea, Democratic People's Republic of Korea, Fiji, India, Indonesia, Iran, Japan, Lao People's Democratic Republic, Malaysia, Maldives, Mongolia, Nepal, New Zealand, Pakistan, Papua New Guinea, Philippines, Republic of Korea, Samoa, Singapore, Socialist Republic of Viet Nam, Sri Lanka, Thailand, Tonga, Turkey, and the Union of Soviet Socialist Republics. Its work with the Regional Offices of UNICEF covers most of the countries and territories in the region.

The clearing house services involve the collection of information relating to education, mainly in Asia and the Pacific, and the promotion of exchange and diffusion of such information through publications and other means, in order to assist the Governments, institutions and educational workers both within and outside the region to benefit from each other's experience. The documents acquired become part of a library collection to serve the bibliographical and research requirements of the Regional Programme and to enable the Regional Office to answer enquiries from Governments and research workers.

44. Library figures at present show a collection of nearly 80,000 documents. Some 80% of library acquisitions are received either as contributions, or as exchange material, and in the main from Government offices, National Commissions and educational institutions of Member States. A library Accessions list and the Periodicals of Asia and the Pacific: a selected list of titles received and their contents provide a listing of titles added to the library collection every six months.

Special mention may be made here of the efforts of the Regional Office to acquire multiple copies of outstanding national publications. These publications along with bulk copies of IBE and Unesco Headquarters documents are then included in the List of publications made available by the Regional Office to Member States.

Diffusion

45. Information thought to be essential to professional people in the Member States is publicized or made available through ROEAP publications. By means of the regular preparation of publications, mainly in English, the results of studies, surveys and other information are published and printed by the Publication and Printing Service of the Regional Office and distributed by the Library and Documentation Service to organizations and individuals who work in the field of education. The publications may be grouped as follows:

(a) Comparative: reports of surveys and studies; education policy reports; monographs on aspects of education; reviews of documents; case studies.
(b) Technical and methodological: Asian simulation in education model; statistical reviews; statistical studies; curriculum guides; correspondence education materials; source books; science worksheets.
(c) Training course materials: educational planning and management; population education; teacher training.
(d) Recommendations: reports of conferences, meetings, seminars.
(e) Information: newsletters; directories; information brochures; posters; reproductions or reprints; bibliographies; accession lists, and other bibliographical compilations.
(f) Operational: prospectuses; announcements.

In about 23 years of operation, the Regional Office has published more than 1,000 major titles (including separate language versions) and more than 9,000 other documents.

46. Certain publications of the Regional Office are established for periodical issuing and serve to diffuse information widely at regular intervals. The Bulletin of the Unesco Regional Office for Education in Asia and the Pacific comes into this category. It was started in 1966 and is published once a year in June. There are times, however, when special issues are published in addition to the June issue. Each issue is devoted to one particular theme and by 1984, 27 issues (including two special issues) of the Bulletin had been published on such aspects of education in the Asia and Pacific region as: the problem of educational wastage; educational research; organization of educational planning and management; general secondary school curriculum; science education; reform and reorganization in education; rural education; adult education and literacy; new approaches and methods in education; education at the first level; school building; open education; technical and vocational education; environmental education; adult education; population education; out-of-school education; science education; and higher education. Each issue contains a detailed bibliography on the topic, covering publications of Member States in the region available in the Library of the Regional Office.

47. In 1972, the Bulletin was issued with two numbers of the Supplement, which was replaced in 1973 by a new serial currently called Education in Asia and the Pacific: reviews, reports and notes and now published each September. This publication includes reports of recent developments in the Member States (which may not yet be otherwise

documented), reviews of publications and notes on Asia and the Pacific documents on education.

An Index to Asian educational periodicals 1960 to 1970 was compiled and published in 1974. Supplements are prepared to bring the Index up-to-date. Periodicals of Asia and the Pacific: a selected list of titles received and their contents issued twice a year alerts readers to periodical articles appearing in educational periodicals published in the region.

To inform research workers in Thailand, and provide libraries within and outside the region with library contacts in Thailand, the Regional Office has published A directory of libraries and library training institutions in Thailand. Revised periodically and currently listing about 95 such services in Thailand, the directory also lists publications available on an exchange basis.

Advisory Services and Internship Programmes

48. On request, the Regional Office provides advisory services and internship programmes to Member States in order to assist them in organizing their own clearing house services. Training may take place in the Regional Office or in the field, depending upon the specific request of a Member State.

The International Network for Educational Information (INED)

49. In 1977, in collaboration with IBE, the Regional Office and the Asia and the Pacific Centre of Educational Innovation for Development (ACEID) convened a Regional Seminar on Documentation and Information Support for Educational Innovation, held in Bangkok. In addition to the recommendations addressed to national authorities in Member States, the Seminar put forward recommendations to Unesco, and in particular to the Regional Office and IBE, to co-operate with the national authorities, in a spirit of international fellowship, in enhancing and strengthening national capacities in educational documentation.

Training. Following this Seminar, the offering of internship training has been accelerated. Training has been given to personnel in Associated Centres of the Asia and the Pacific Programme of Educational Innovation for Development (APEID), Unesco National Commissions, Adult and Literacy Programmes, Unesco/UNDP Projects in Member States and other education libraries and information centres.

Exchange of information/publications. The Regional Office has a mailing list of over 2,000 addresses which includes institutions to which IBE publications are sent. The Regional Office sends a complete set of its publications to IBE for information. An exchange of mailing lists takes place from time to time to update addresses.

Bibliographical and other reference works. As the need arises, it has been possible to obtain computer print-outs of titles available at IBE on special subjects. The provision of the IBE Thesaurus, subject terminologies and other reference works help to meet the diverse requirements of documentation work of the Regional Office.

Some Problems

50. Acquisition. Acquiring documents in the Asia and Pacific region is hindered among other reasons by the scarcity of the listing of documents available in the market or in the educational institutions. In a number of countries of the region, no centralized agency exists to manage and diffuse educational information.

Despite stringent efforts which have been made to acquire materials by correspondence, by personal contacts during missions to Member States, and by soliciting country documents from participants coming to the Regional Office meetings, the results are still not satisfactory. Acquisitions received by exchange are often short-lived.

It has been observed that some National Commissions for Unesco and other organizations in the Asia and Pacific region send useful publications to IBE and miss sending similar materials to the Regional Office, and vice versa in some cases. There is a need to find ways to exchange information more quickly on whatever documents are received from the national authorities by each.

IBE, all along, has been sending the Regional Office copies of country reports on educational development prepared for the biennial meetings of the International Conference on Education in Geneva, as available from their duplicate collection. However, as the problem of keeping country files up to date continues to persist, it will be very useful, if in the accompanying letter of their questionnaire, IBE remind the countries to also provide copies of their reports to the Regional Offices concerned.

As IBE makes microfiche of the reports on educational development mentioned above, an arrangement for the Regional Offices to receive a whole set of microfiche of the reports will enrich their country files.

51. Analysis and diffusion. The literature acquired needs in-depth and speedy indexing to assure its fullest use. The job also requires manpower devoted fully to this task. Likewise, the ever-increasing enquiries for educational information coming from diverse sources demand immediate replies of substantial content.

Among the regional offices, the Regional Office serves the widest area and largest number of people with very diverse cultures compared with other regions. Whereas other regions use homogenous language(s), the Asia and Pacific region has not only different languages, but also different alphabets. Moreover, in several countries in the region, English is not widely used, even if it is considered as the first foreign language in the country. From the situation described above, practical difficulties emerge. Publications using English language have a very limited readership which require issuing texts in simple English or the translation or summarizing of texts in the local language for a wider readership.

52. Reference works. IBE has compiled and published directories and other reference works covering the countries in the world. In the course of consulting them, it is found that some countries in the Asia and the Pacific region are not covered, as most likely the compilations are based on questionnaires as returned by the individual countries to IBE. This is one among some cases where cooperation in a network could be pursued.

53. Training guidelines. As the Regional Office embarks more and more on internship programme training, it makes use of the existing guidelines and handbooks published by IBE, PGI and the like. For standardization purposes, there are needs for more guidelines and handbooks for setting up educational documentation and information services.

Future Plans

54. Computerization. Presently, the mailing list of the Regional Office is computerized using the facilities of UN Economic and Social Commission for Asia and the Pacific (ESCAP). Similarly, selected acquisitions of the library are being entered in ESCAP's Bibliographical Information System (EBIS) as part of the cooperative project among UN agency libraries in Bangkok. However, to accelerate the documentation work and information services of the Regional Office, various jobs presently done manually are being examined for computerization.

55. Microfiche collection. As the library collection is outgrowing its present space, documents which would be better kept on microfiche are to be studied for acquisition purposes.

I. Unesco Regional Office for Education in Latin America and the Caribbean (OREALC) - Documentation and Information Centre

56. There is no activity undertaken by OREALC which does not have documentary support. This applies to the ordinary information supplied to participants in a meeting as well as to substantial and exhaustive working documents which will be used as basic points of discussion in seminars, courses, etc. This kind of information is also an element in the adoption of decisions and directives by local and national governments and the responsible authorities of regional and intergovernmental organizations.

The above-mentioned services are also requested by and supplied to specialists in education, researchers, teachers and students both within and outside the region. It can therefore be considered that the educational documentation and information service has an important place in OREALC.

OREALC, Unesco's Regional Office of Education for Latin America and the Caribbean, is one of the four of this type used by Unesco in carrying out its educational programme in a gradual process of administrative and technical decentralization. Its principal functions cover the areas of studies and research, documentation and dissemination of information, the training of personnel for educational services, technical co-operation and support for the ongoing national and regional projects. OREALC's specific activities extend to the following Member States: Antigua, Argentina, Bahamas, Barbados, Belize, Bolivia, Brazil, Colombia, Costa Rica, Chile, Cuba, Dominica, Dominican Republic, Ecuador, El Salvador, Granada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Montserrat, Nicaragua, Panama, Paraguay, Peru, Saint

Kitts, Nevis and Anguia, Saint Vincent and Granada, Saint Lucia, Suriname, Trinidad and Tobago, Uruguay and Venezuela.

The Documentation and Information Centre contains two functional sections: the bibliographic and/or documentary section, with its library, and the reproduction and publications section.

Documentation

57. Here, information about education is compiled, processed and disseminated for the purpose of assisting governmental and non-governmental bodies, researchers, planners and educators in general, helping them in this way to increase and update their knowledge and to benefit from a mutual exchange of experience.

The bibliographic and documentary collection fills the information need of the countries of the region and consists largely of Unesco publications, documents printed by OREALC and books and other materials which are donated by and/or exchanged with other centres, State organizations, etc. This material is processed manually, using standardized rules in international use.

To date, the collection comprises about 4,000 books, 15,000 documents and more than 800 periodicals.

Publications

58. 118,143 copies were printed between 1981 and 1983, representing 284 documents and periodicals. The documents include studies, surveys, final reports of meetings, working documents, statistics, textbooks, case studies, etc., covering all the educational fields within the purview of the Regional Office.

The above-mentioned figure can be broken down as follows: 36,180 copies were printed in 1981; 42,591 in 1982; 39,372 in 1983; and 28,157 in 1984. Of these documents, the majority were prepared under OREALC's Regular Programme in Latin America and the Caribbean; others were the result of collaboration between the Regional Office and Unesco's Headquarters in Paris, the review Contacto, and the IBE in Geneva, the bulletin IBEDOC información, and with the Regional Programmes connected with OREALC, such as the programmes for population education and population communication.

Dissemination

59. One of the most important tasks of the Documentation Centre is to distribute the bibliographies produced by OREALC and the documents received from Unesco Headquarters and the IBE in Geneva.

The basic purpose of this work is to provide direct assistance to the priority activities of the Regional Office, to help the member bodies of the Regional Educational Information Network, with reference to the International Network for Educational Information (INED) and to answer specific requests for information. The beneficiaries of this service are mainly Ministries of Education, the planning offices of Ministries of Education, the National Commissions for Co-operation with Unesco, national centres of educational documentation and information, educational research centres, teacher-training institutions, international bodies, field experts, researchers, professors, teachers and students. This service is also available to the various documentation centres at Unesco Headquarters and the other Regional Offices.

23,360 copies were distributed in 1981; 55,757 in 1982; 43,019 in 1983; and 37,644 by the end of November 1984.

Future activities

60. The control, bibliographical processing and dissemination of information, as well as the transfer of bibliographic data, has proved to be a very difficult task which is influenced not only by the bibliographic explosion but also by such individual problems as adequate space, personnel and budgets. This will also be influenced in one way or another by the programme of decentralization and automation (computerization) which is now being carried out at Headquarters, and concerning which only occasional and isolated knowledge is as yet available.

Requirements

61. This heading covers the elements of space, personnel and budget.

Space: In view of the large amount of bibliographic material, it is necessary to provide an adequate amount of space to cope with the constantly growing increase in the collection. Here, mention should be made of the space which will be occupied by periodicals.

Space is also needed for the ordinary work and storing the equipment which will be used for printing the documents, including the production of microfiches which might help solve part of the present problem.

Personnel: In view of the working system imposed on the Office, which consists mainly of preparing occasional jobs to meet the needs of the PAD, it is often necessary to put aside the current or routine functions of the Centre, such as processing, which results in an accumulation and backlog of work. The same happens with many outside requests for documentary assistance and the transfer of bibliographic information. One solution to these problems would be to hire another professional librarian and a full-time secretary for the Centre.

Budget: Until now, and especially because of the great increase in publications and their dissemination in recent years, the Documentation and Information Centre has been unable to satisfy fully all requests for documentary assistance, owing among other things, to the lack of specific resources within the Office's budget.

Although money is available for occasional, specific activities under the different headings, it has not yet been possible to count on a general fund or heading to cover bibliographic and documentary assistance on subjects which do not fall within some specific working area of the Office. In general, the same can be said about the distribution of publications, which are printed according to budgetary provisions which quickly exhaust their original funds, owing in particular to the growing costs of the different postal and distribution services.

In order for the OREALC Documentation and Information Centre to be fully efficient, it would therefore be necessary to meet the requirements mentioned above, without failing to consider the possible future influence of the decentralization of activities now being undertaken at Unesco Headquarters in Paris.

J. European Centre for Higher Education (CEPES) - Information and Documentation Centre

62. Presently, the CEPES information and documentation centre contains two sections: the library and the documentation.

Library

The Library exists since 1974 and contains mainly publications related to higher education in the Europe Region (policies, systems, development), excluding discipline-oriented literature or publications on didactics.

There are about 6,000 titles on higher education (of commercial and non-commercial origin), which are displayed according to the following scheme:

- (a) general works on education and higher education
- (b) publications by country (Europe Region, the largest portions and entries come from the following countries: USA, UK, FRG, France and Canada)
- (c) publications outside of the Europe region (Asia, Africa, Latin America)
- (d) publications by Unesco, its Regional Offices and other UN agencies or offices.

Each section is organized in alphabetical order following the Universal Decimal Classification.

Since 1984, CEPES stocks a complete collection of Unesco publications.

The Periodicals (collection)

63. The Library contains all major periodicals dealing exclusively with higher education. Presently, there are 124 titles available, with a total of about 5,033 copies. When considering major areas or countries of origin of periodicals, the strongest are:

- International journals, including Unesco - 30 journals
- United Kingdom - 23 journals
- United States of America - 18 journals
- Canada - 7 journals
- France - 6 journals
- Federal Republic of Germany - 5 journals

Most of the Member States of the Europe Region with a national system of higher education publish at least one periodical, which can be found at CEPES' Library. CEPES also receives about 15 journals from Africa, Asia and Latin America.

The total volume of scholarly periodicals related to higher education represents an invaluable source of information, on the development of higher education in Europe as well as the topics and findings of research on higher education.

Non-classified periodicals

64. CEPES has a fast growing collection of varied documents such as: news bulletins, occasional papers, activity reports, etc. which appear less regularly, emanating from different local, national or international institutions, associations, authorities or organizations. CEPES stocks about 140 titles of this kind of publication.

The Library contains the following catalogues:

- systematic (Universal Decimal Classification)
- alphabetic (authors, editors, titles, series)
- by country/region
- key-word (since 1982)

Particular attention is now paid to further develop and extend the key-word catalogue, by using the IBE educational thesaurus. All publications, books, periodicals and conference proceedings are now systematically analysed with a view to obtaining a significant list of references for most of the thesaurus 'key-words' related to higher education. In this connection, CEPES makes use of its multilingual staff also to analyse publications in less well known languages.

Documentation

65. The Documentation itself and its organization.

The following documents have been collected since 1974:

(a) All major Unesco internal working documents;
Unesco conferences related to higher education;
CEPES conferences and meetings, all in all about 36 new conferences;
Proceedings of major world conferences on higher education since 1976.

(b) The proceedings of all national and regional conferences related to higher education, organized in the Europe Region (systematic since 1983). This collection constitutes a significant source of reference. Proceedings are abstracted so as to make relevant entries in the key-word catalogue. The proceedings are listed by country and in chronological order.

(c) National legislative texts referring to higher education; frequently such documents are written in their respective national language but contain mostly an abstract written in English or French.

(d) Following a recommendation of the recent Second Session of the Regional Committee in charge of the Application of the Convention on the Recognition of Studies, Diplomas and Degrees, concerning Higher Education in the States belonging to the European Region, CEPES starts a systematic collection of national legislation and data referring to the mutual recognition of studies and diplomas as well as mobility in higher education.

(e) Statistical data referring to national systems of higher education, collected in close connection with Unesco's Statistical Office.

(f) CEPES has a growing collection of research reports on higher education and is also trying to update and extend its list of current projects.

(g) List of higher education specialists and experts, listed by country and by specialization.

(h) List of institutions specialized in or concerned with research on higher education.

(i) List of national and regional organizations (governmental and intergovernmental) and associations concerned with higher education.

(j) A collection (altogether 494) of academic yearbooks of major universities of all countries of the Region (since 1980).

(k) List of past and forthcoming conferences, symposia or meetings on higher education.

(l) Numerous encyclopedias, dictionaries, manuals, etc.

Information Services

66. Information at CEPES (books, periodicals, information bulletins, research reports, statistical data and conference proceedings as well as the various catalogues and listings) is made available to Member States of the Europe Region in the following manner:

CEPES disseminates its information by its own publications:

(a) The most important one is the scholarly review Higher education in Europe (5,000 copies per number, 4 times a year, appears in English, French and Russian). Each issue contains a certain number of articles on a chosen Topic, a Tribune section and an information section, drawing largely on non-classified documents (ref. para 1-3) received by CEPES which contains: (i) brief information on recent developments in higher education; (ii) list of conferences; (iii) book-reviews and notes.

(b) CEPES also publishes a series of national monographs of systems of higher education. Such monographs contain up-to-date information on national systems and include abundant statistical data and a list of institutions. Data available in CEPES are used to up-date and complete these publications. Similarly, studies on access, inter-university cooperation and interdisciplinarity and the statistical studies (3 since 1974) have been established by drawing extensively on information stocked by CEPES. Such data also enter preparatory papers for conferences organized by CEPES or other units concerned with higher education.

(c) CEPES also answers inquiries on particular subjects. A special service consists of bibliographies that are established either upon request (Unesco units, NGO's, institutions, individuals) or in connection with other thematic activities (studies, meetings).

(d) CEPES receives increasingly visitors from the Region, who use its bibliographic and documentary collections for research or information purposes.

Plans for the Future

67. It is planned to set up a regular bibliographic service in collaboration with the ERIC Clearinghouse on Higher Education and other specialized national and international information and referral centres.

In order to serve the need felt for easily accessible, brief but relevant information on current issues (development, laws, statistics, conferences, publications) in higher education, CEPES is looking for extended forms of dissemination, eventually in the context of INED.

Shortly, the Library and documentation section will be computerized. Particularly, the key-word catalogue will then allow cross references, especially important for bibliographies. A computerized exchange of information in machine-readable form with other centres and institutions is envisaged.

An extensive microfiche system will be built up so as to be able to stock the increasing demand for information and to make some of it available to specialists concerned with higher education in microfiche form.

Finally, CEPES plans to help set up a network of regular exchange of information on current research projects on higher education. This will involve the major research centres and specialists in the Europe Region.

K. Regional Centre for Higher Education in Latin America and the Caribbean (CRESALC) - Information and Documentation Service (SID)

Origins and Justification of SID/CRESALC

68. There are sufficient reasons to justify the creation of an Information and Documentation Service in the field of higher education in Latin America and the Caribbean. This is not because of the lack of information in this area, but, on the contrary, because of its very abundance, as it is too scattered and difficult to access to serve any useful purpose.

On the other hand, this situation is made still more difficult by the growing demand for information, which is absolutely necessary in order to uphold high technical standards and to ensure a knowledge of current studies and research for purposes of applicability, comparison, etc.

In view of these facts, and as one of its principal functions, CRESALC created its Information and Documentation Service in 1979, with a view to providing the Member States of the region with an efficient service which would ensure the procurement, processing and circulation of information on the subject in Latin America and the Caribbean.

Objectives of SID

69. The objectives of SID are essentially as follows:

(a) To identify and compile, in collaboration with the existing national, sub-regional, regional and international services, documentation concerning the various problems of higher education;

(b) To organize documentation by a process of selection, analysis, indexing, classification and filing, with a view to ensuring the rapid and timely retrieval of information, with due regard to the various characteristics and requirements of the region;

(c) To provide relevant information which will save users' time by reducing the volume of irrelevant information;

(d) To establish and increase contacts and exchanges with international, regional and national organizations which deal with similar subjects;

(e) To circulate current documentation effectively;

(f) To encourage the organization of courses, seminars, etc. for the purpose of promoting and developing the existing information units in the region and stimulating the exchange of experience;

(g) To guarantee access to the necessary information to persons engaged in research in higher education, as well as to governmental decision-makers.

Users

70. In the case of CRESALC, its users are easily identifiable: they are everybody connected with higher education in Latin America and the Caribbean. Generally speaking, it is possible to distinguish three main categories of users by the type of activity in which they are engaged:

(a) Researchers
(b) Specialists, technicians and students
(c) Directors, planners and other persons responsible for making decisions.

The information needed in each of these categories, although similar in content, is basically different depending on its purpose, applicability and degree of completeness.

In the future, it would be desirable to make a more detailed study of users by defining their general fields of interest; this would require the preparation of a census before carrying out the necessary surveys. The purpose of this study would be to determine with greater precision, the information required by the different categories of users and the services needed in order to meet their requests for information.

Composition of the Collection

71. The collection consists basically of the following:

(a) General works and reference books acquired by purchase, exchange or gifts;
(b) Periodical publications obtained by exchange or subscription;
(c) Reports of research studies, courses, seminars, etc. supplied by persons and institutions with which CRESALC maintains relations for the exchange of material;
(d) Reports with restricted circulation, mostly unpublished, relating to practical situations which can serve as a basis for comparison or imitation, when readapted to similar situations in other countries in the region;
(e) Microfiches and microfilm obtained from Information and Documentation Centres such as Unesco, IBE, REDUC, etc.;
(f) Audiovisual materials;
(g) Press clippings, etc.

At the present time, SID has a collection of 5,000 monographs and documents; 250 titles of periodicals and 1,500 microfiches obtained from Unesco/LAD, REDUC and OECD.

Fields covered by SID

72. With due regard for the most important topics of common interest to the Member States of the region, the basic fields covered by SID are the following:

- Structure of higher education
- Policies and plans for higher education
- Organization and administration of higher education
- Research and evaluation in higher education
- Trends and development in higher education
- History of higher education
- Information models and systems for higher education
- Higher education in the context of society as a whole
- International co-operation in higher education
- Organization and content of higher education
- Statistics concerning higher education.

Selection and Acquisition of Bibliographic Material

73. The materials which make up SID's documentation collection are selected by its own technical personnel, together with researchers

working with CRESALC. They are selected by reviewing various sources, such as the catalogues of publishing houses, bibliographies, lists of material acquired by other information units, exchange lists, suggestions by users, press advertisements, specialized reviews, etc.

Cataloguing and Classifying of Bibliographic Material

74. The material received by SID is technically processed for practical use. The International Standard Bibliographic Description (ISBD) and the Anglo-American cataloguing rules, 2nd ed., are used for bibliographic description. For assigning descriptors, use is made of the Unesco:IBE education thesaurus, the Microtesauro de la educación superior en Venezuela of the Planning Office of the University Sector (OPSU) and the OECD's Macro-thesaurus for information processing in the field of economic and social development.

The Reference material is classified according to the Universal Decimal Classification (UDC). No classification system is used for books; they are simply numbered consecutively.

Bibliographic material can be located by consulting the following catalogues:

- A catalogue classified by author, subject-matter and title
- A shelf catalogue.

Document Processing

75. Documents which SID considers relevant are subjected to more complex analytical-synthetical processing. Since the end of 1983, CRESALC has become a part of REDUC and has adopted the REDUC format for preparing abstracts. The less relevant documents which do not call for abstracting are simply indexed, by using the thesauri referred to above.

Once documents have been processed, they are stored in vertical filing cabinets, in numerical order, so that they can be easily located.

The Peek-a-boo card system is used for retrieving documents. This system consists of body-punched cards with a capacity of 11,099 positions. One card is used for each descriptor. The number of each document is punched in the card or cards of the descriptors which have been assigned to it in accordance with its content. There is also a catalogue classified by authors and another by the title of all documents processed by SID.

Services

76. At the present time, SID provides the following services:

- Reading room. It has a reading room which can accommodate 20 users. This is used by local readers and the researchers, experts and consultants who carry out their studies in CRESALC. Thanks to this service, CRESALC can provide valuable assistance to researchers in the headquarters country, who have direct access to SID's collections.

- Loans. Internal loans for all users; home loans only for CRESALC's personnel. Inter-library loans with the information units of the metropolitan area of Caracas. This limitation is due to the inadequacy of the postal service and the risk of publications being lost.

- Reference service. The reference service provides the following facilities: research when requested by users. This may involve: (a) a quick consultation, such as statistics, data, the definition of some term, etc., which can be supplied immediately; (b) more extensive research, such as the preparation of bibliographies. In this case it is necessary to conduct a more detailed search in the indexes, abstracting journals, card-indexes, etc. In some cases, recourse must be made to other information units. The length of time required for a reply varies according to the subject of the demand and the extent and detail of the research requested.
- Reproduction of documents. This is one of the most effective means by which users can obtain access to SID's collection. The established fee is US$0.20 for each copy, including mailing cost, and US$0.35 for microfiches.

Dissemination of Information

77. In view of the fact that SID covers an entire region, special importance has been attached to the dissemination of information. SID has an immense mailing list for its publications, which at present includes approximately 1,500 institutions, such as libraries of schools of higher education, research centres and information units specializing in higher education, sub-regional, regional and international bodies also specializing in this field, the National Commissions for Co-operation with Unesco in the region, CRESALC's Consultative Committee and Unesco offices concerned with higher education at Headquarters as well as in other regions.

Basically, information is circulated by means of the following publications:

(a) Boletin de resúmenes analíticos (Analytical abstract bulletin), whose basic objectives are: (i) to assist in the circulation of documentation concerning higher education produced in the region; (ii) to facilitate the location of relevant information needed for carrying out research and studies, as well as for formulating, implementing and evaluating educational policies. This bulletin is published quarterly and contains abstracts of documents published during this period. The abstracts and descriptors are in Spanish, while the titles are given in their original language with a Spanish translation. Up to now, 14 bulletins have been published, containing a total of 1,491 abstracts. Starting with Volume 5 in 1984, a cumulative index will be published, and a similar index is in preparation to cover the previous volumes.

Each analytical abstract covers the following points: classification number, author, title, publication, key words, description, sources, methodology, contents, conclusions and the initials of the person who prepared the abstract. The material is arranged as follows: General, Latin America and the Caribbean and alphabetically by countries. To make it easier to use, there is a subject index (by key words) and an author index.

(b) State of the Art Studies. Using a new working method in the field of educational information, CRESALC began preparing 'Estados del arte' in 1984 on the basis of the analytical abstracts of SID/CRESALC and any additional information which the authors consider relevant. These publications cover the following subjects: higher education and employment in Latin America and the Caribbean; access to higher education in Latin America and the Caribbean; the University and scientific and technical development in Latin America and the Caribbean; distance higher education in Latin America and the Caribbean; and the financing of higher education in Latin America and the Caribbean.

(c) Directories. In performance of the tasks entrusted to CRESALC at the regional meeting of experts on information concerning higher education in the region, held at CRESALC's headquarters in October 1982, SID prepared and published its 'Directorio de centros de investigación y unidades de información sobre educación superior en América Latina y el Caribe. This Directory is based on an analysis of the replies to a questionnaire sent to the above-mentioned services of all countries in the region, and covers 89 research centres and 14 information units.

Likewise, as a follow-up to the working plan approved at the regional meeting of statisticians concerned with higher education in Latin America and the Caribbean, held in 1983, SID prepared its Directorio de organismos responsables de la información estadísticas de educación superior en América Latina y el Caribe.

(d) Promotion. For the purpose of making SID better known among its users, a leaflet about the Information and Documentation Service has been widely circulated in the region.

(e) Bibliographic Series. The main purposes of this series are to provide all those interested in the subject of higher education with useful references on the principal works in this field which are to be found not only in CRESALC's SID but also in various libraries and specialized documentation centres in different countries in the region; to contribute to educational and social research; and to promote the exchange of information at the regional level. A first edition of this series was published in 1981 under the title Selective bibliography on higher education in Latin America and the

Caribbean. Subsequently, in order to keep it up to date, and in view of the large number of references received, it was agreed to publish it in booklets covering the most important topics in the field of higher education, in order to make it easier for users to consult the bibliography. In 1984, five booklets were published concerning: postgraduate studies; open and distance higher education; higher education and scientific and technical development; university youth and educational reform.

Future Activities of SID/CRESALC for 1984 and the 1986-1987 Biennium

Acquisitions and Processing

78. Relevant material should continue to be acquired regularly in order to keep the collection as up to date as possible. The technical processing of the materials received by SID must also be continued in order to ensure easy access to them.

Services

79. Throughout this period, SID would continue to extend and improve its consultative services (reading room and external consultation), bibliographies when requested by users and photocopies of documents. SID's services could be increased in the next few years by introducing the Selective Dissemination of Information Service (SDI), which consists of the regular supply of information about selected topics or data to individual users or groups of users according to their interests. Steps might also be taken to establish contacts with institutions working in the field of information on education, such as REDUC, with a view to preparing a study on the use of information concerning higher education in the region.

Dissemination of Information

80. In view of the favourable reception given to the Analytical abstract bulletin by its users, its publication might be continued while increasing the number of abstracts in each bulletin and improving their contents, presentation and scope.

State of the Art Studies

81. Publication of the Estados del arte reports prepared on the basis of abstracts could be continued, together with the publishing of documents on the following subjects: efficiency and effectiveness of higher education, planning of higher education, university pedagogics.

Bibliographies

82. The various booklets already published could be updated and expanded to bring them into line with the Selective bibliography on higher education in Latin America and the Caribbean.

Computerization

83. In view of the increase in SID's collection and the expansion of its services, the steps already taken to install data processing might be intensified.

Information Network on Higher Education in Latin America and the Caribbean

84. Because of the difficulties now faced by the regional and sub-regional institutions which constitute the nucleus of the Network, its membership will have to be redefined. For this purpose, one alternative would be to base the Network on institutions at a national level (such as OPSU, ICFES, CAPES, etc.) with which CRESALC is already carrying out a number of activities. Consideration might also be given to the possibility of incorporating this Network, as a sub-network, in the Latin American Information and Documentation Network on Education (REDUC).

L. International Institute of Educational Planning (IIEP) - Documentation Centre

Organization and description

85. The Documentation Centre was established at the same time as the International Institute for Educational Planning (IIEP) in 1963. This is testimony to the importance attached by IIEP from the beginning to the processing of information and documentation. Currently the Centre occupies a team of five persons made up of three documentalists and two assistant documentalists.

The documentation covers the following subjects:

- education policy and planning
- description and management of education systems (principally for developing countries)
- diversification of education programmes: literacy, non-formal education, etc.
- economic, social, scientific, technical and technological developments as they relate to education
- educational statistics.

The Centre's acquisition policy is in keeping with the Institute's dual role of research and training. Selection of titles is done in close collaboration with IIEP research workers.

IIEP documentation collection comprises approximately 29,000 books and documents acquired or received free of charge or in exchange for others. Every year, approximately 1,000 items are added to the collection. The periodical collection contains approximately 550 titles. Between 40 and 45% of the titles making up the Centre's document collection are in English, 30% in French and the rest in Spanish, Portuguese, Arabic and other languages.

Each document received by the Centre is evaluated and then either catalogued, indexed and classified or directly classified and filed by country or subject. The books and documents in the main collection are directly accessible. They are classified by subject in accordance with the Centre's own classification system. The Centre has a manual card catalogue by author, title, country and subject, and its acquisitions are indexed in accordance with its own classification. Each periodical received is scanned and those articles found to be of relevance to IIEP research work are indexed. These number approximately 700 per year.

The Centre distributes internally a monthly listing of all its acquisitions. It also distributes press clippings and tables of contents of periodicals to internal users on a personalized basis.

The Centre has a computer terminal (Memorex 1377) with an on-line connection to Unesco data bases. The CDS/ISIS data base is interrogated daily in order to update the Centre's information.

Access to the Centre is reserved for IIEP and Unesco personnel and IIEP trainees. The experts, specialists and doctoral students of educational sciences have access to the Centre during four afternoons of every week. Each year the Centre serves more than 200 new external users. It receives on an average, 90 user visitors per month.

Information Services for Member States

86. The Documentation Centre publishes a Bulletin of educational planning documentation. This bulletin contains abstracts of the following publications:

- publications and documents distributed by the Institute
- documents prepared within the framework of the Institute's research programme, such as papers prepared for seminars, articles written for specialized periodicals, etc.

Since 1984, this bulletin also contains critical analyses (between three and four pages) of selected studies, documents and articles from periodicals which are considered by IIEP to be of a fundamental nature in relation to its Medium-term plan. In this way, IIEP seeks to draw the attention of its correspondents to the existence of certain studies and documents and an analysis of their contents which it is able to provide by reason of its privileged status as a focal point for educational planning.

These analyses are followed by a selective list of bibliographic references to the Centre's principal acquisitions.

The quarterly bulletin is distributed free of charge to almost 900 correspondents, most of them in developing countries.

The Centre also distributes bibliographies by subject based upon its documentation and that of Unesco. These bibliographies are mentioned in the Bulletin and can be obtained upon request.

The Documentation Centre supplies, upon request, the list of those periodicals which it holds as well as the current state of the collection. For recording purposes, the references to articles considered as being particularly important, and which therefore have been indexed, are included in the bulletin, classified by subject.

The Documentation Centre responds to all requests for information which it receives by sending out bibliographical lists, photocopies of articles or of chapters, and documents available in more than one copy. If it is unable to provide its correspondents with the relevant documentation, it directs them to other centres susceptible of providing them with support for their research. For this purpose, the IIEP Documentation Centre has published a document entitled Selection de bibliothèques et centres de documentation spécialisés dans les domaines de l'éducation et/ou du développement (in Paris).

Every year, the Centre is host to a large number of specialists, who utilize its documentation facilities for periods varying from a few days to several months.

Plans for the Future and Problems

87. The IIEP Documentation Centre is still using 'artisanal' methods it its work and would like to take advantage of the new information technologies in order to exploit in more depth the documentation which it has as its disposal, and at the same time, make it available to a greater number of users, relieving itself of some of the repetitious tasks which it still has to perform. To this end, the Centre is planning to automate the control and registration of incoming periodicals as well as the management of its orders by utilizing either the micro-computer available at IIEP or the Unesco central computer. It also plans to computerize its documentation collection through the setting up of a computer file connected with Unesco's Computerized Documentation System.

IIEP hopes that it will be in a position to contribute actively to the network of data bases covering Unesco, IBE, the Regional Offices of Education of Unesco and other organizations working in the field of education and/or development. IIEP will lend its full support to all efforts undertaken in this regard.

M. The Unesco Institute for Education, Hamburg (UIE) - Documentation Centre and Library

88. The Unesco Institute for Education (UIE), established in 1951, is one of Unesco's specialized international institutions. The Institute's activities are linked to its major functions of research, promotion, training and dissemination in the fields of content of education, learning strategies, evaluation of learners, achievement and teacher preparation in the broad perspective of lifelong education. The research, training and dissemination activities are supported by the Documentation Centre and Library.

Organization of UIE's Documentation Centre and Library

89. Priorities in the accession policy are set by the topical foci of UIE's projects. Thus, during the past decade, a concentrated effort has been made to identify and acquire publications on lifelong education, educational research, curriculum development, teacher training, post-literacy and continuing education. The library has made an outstanding collection of specialized materials in the field of lifelong education. A sample collection of learning materials for post-literacy and continuing education includes materials from more than 60 countries. Another emphasis is on information literature pertaining to the UN and

its Specialized Agencies for the use of local personnel with the support of the City State of Hamburg.

The Documentation Centre and Library's current holdings are about 40,000 books and documents and 300 regularly received educational journals with worldwide geographic coverage, written mainly in English, French, German and Spanish. Monographs are classified in accordance with a slightly adjusted version of the Universal Decimal Classification. The bibliographical data are stored in conventional card catalogues. The periodicals are regularly scanned, references of articles relevant for UIE's programmes stored. The average annual increase of the holdings amounts to 1,800 - 2,000 titles. About 30% of the new acquisitions are purchased, 40% acquired on the basis of exchange arrangements and about 30% are gifts.

The budget of the Documentation Centre and Library amounts to about DM 25,000 for the purchase of books, etc. The staff consists of two professional librarians.

Information Services to Member States

90. Information services to Member States are provided by (a) supporting UIE's research programme, (b) operating as a clearinghouse on lifelong education, (c) conducting a United Nations Volunteers Educational Centre programme and (d) offering documentation and library services to the public.

(a) By selecting and displaying documentation essential for the preparation and implementation of UIE research and study projects with varying geographical emphasis, information is disseminated via participants from differing Member States.

(b) The following printed products are regularly distributed to researchers, research institutions and documentation centres in Member States:

(i) Directory of writers on lifelong education. Hamburg, Unesco Institute for Education, 1980. 62 p. (Lifelong Education Network)
Contains data on 287 persons from 47 Member States, will be updated regularly.

(ii) Awareness list: lifelong education. Hamburg, Unesco Institute for Education; Geneva, Unesco: International Bureau of Education, 1976 ff.
Distributed to more than 120 countries, contains 60 analytical computerized abstracts annually, indexed with the Unesco:IBE education thesaurus, stored for retrieval in the computerized data base.

(iii) Lifelong education bibliography. Hamburg, Unesco Institute for Education, 1973 ff.
Distributed to about 70 countries, published three times a year, contains about 150 references annually.

(iv) List of new acquisitions. Hamburg, Unesco Institute for Education.
Distributed to about 40 countries, issued bimonthly.

(c) Information on the UN and its specialized agencies is supplied on request. Information material is distributed. A permanent display on the UN and its specialized agencies has been built up. Small displays are arranged on the occasion of the International Years as announced by UN.

(d) Access to the Documentation Centre and Library is general, book loans are possible for residents in Hamburg. Information on educational research topics is provided to those who make special requests. The bibliographical data of new acquisitions are regularly delivered to the North German Central Catalogue where they are put at the disposal of the inter-library loan system. 4 library science students are annually accepted to do their practical studies.

Future Plans

91. The introduction of new technology may be considered. Initial steps have been taken to examine possibilities of computerizing the Documentation Centre and Library. The collection may expand concerning non-print materials. Video-cassettes, audio-cassettes, records and other new media have already been incorporated in the holdings in connection with the sample collection of learning materials for post-literacy and continuing education of neo-literates.

Problems Faced

92. The greatest foreseeable problem will be caused by the rise in prices for printed materials as well as new media versus increasing economic stringency.

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Distribution: limited

UNESCO/BIE/DOCINF/3
Geneva, April 1985
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UNITED NATIONS EDUCATIONAL,
SCIENTIFIC AND CULTURAL ORGANIZATION

INTERNATIONAL BUREAU OF EDUCATION

MEETING OF EXPERTS IN EDUCATIONAL
DOCUMENTATION AND INFORMATION

International Conference Center
Geneva, 20-24 May 1985

IBE ACTIVITIES IN THE FIELD OF EDUCATIONAL DOCUMENTATION AND INFORMATION: ITS PRESENT SITUATION AND FUTURE DEVELOPMENT

A - INTRODUCTION

1. The utilization of participative and co-operative principles for the improvement of educational information services started to take shape at the IBE in 1971, when the Bureau organized a first consultative meeting which gathered 'a small group of specialists for the purpose of advising the Bureau on the development of the Co-operative Educational Abstracting Service and related activities' (*). In the document presented to this meeting the development of a worldwide network for the dissemination of educational information based on national institutions is already mentioned as one of the IBE long-term objectives. The group, composed of specialists from different regions of the world, from the Unesco Regional Offices for Education and from Unesco Headquarters, met again in 1972, 1973, 1974, 1975 and played an oustanding role in setting up guidelines for the IBE's work in educational information.

2. As a follow-up to the suggestions and recommendations made by this group, several initiatives were taken by the IBE in the period between 1971 and 1975, such as the publication of an acquisition list, a newsletter and directories of educational institutions, the development of a thesaurus, the introduction of computer techniques in the Documentation Centre, and the creation of a computerized data base. During the same period efforts were made to encourage Member States to participate in the activities developed by the Bureau and many new contacts were established. However, by 1975 this participation was far from being widespread owing to a general lack of national infrastructures to undertake educational documentation activities within countries.

3. This point was raised during one of the meetings of the IBE Council, which considered that it deserved more thorough discussion. Thus, the Council proposed that the improvement of educational documentation and information should be debated as the special theme at the following session of the International Conference on Education. The theme was formulated as follows:

> "The problem of information at the national and international level which is posed by the improvement of educational systems".

The discussion at the 36th session of the International Conference on Education, held in Geneva, 30 August-8 September 1977, resulted in the adoption of Recommendation 71.

(*) IBE Working paper for the Meeting of the Steering Committee on Educational Documentation and Abstracting Service, Geneva, 14-18 June 1971.

B - RECOMMENDATION 71 AND ITS IMPLEMENTATION

4. Paragraph 24 (a) of this Recommendation states that:

> "Unesco, particularly through IBE and in close collaboration with other international agencies and organizations, should undertake: the systematic planning, costing and development of a world-wide information network in education based on the active participation of regional and national institutions and programmes and including an assessment of the resources available and a time scale showing intermediate objectives."

The first phase of this operation was the identification of national institutions which, with the support of their governments, were willing to co-operate in the network activities. Following a request addressed to all Unesco Member States by the Director of the IBE, eighty-six positive replies have already been received which may be considered a very encouraging result.

This positive attitude of Member States corresponds to paragraph 5 (c) of Recommendation 71, which says: "In drawing up a plan and programme of action leading gradually to the development of an educational information system, education authorities should ... where national conditions this, identify a single national centre to serve as the focal point both for the national educational information network and for international contacts and exchanges in this area".

The aims of Recommendation 71 include the improvement of information exchange in the field of education amongst Unesco Member States. For this purpose the IBE has taken the initiative of launching a programme for the publication of reference works to facilitate and encourage direct exchanges between specialists and institutions. A good example is the Directory of educational research institutions, which gives such information as the type and subjects of research projects undertaken by these institutions. Reference tools are also very helpful in the regular exchange work of documentalists and librarians. Regarding the participation of Member States in the implementation of Recommendation 71, IBE has addressed to the eighty-six agencies designated by Member States to be INED focal points a request for contributions in the form of relevant documents in the field of educational policy. These documents have been entered into the IBE data base IBEDOC, for the benefit of all its users.

5. It was not easy to take a decision regarding the next measures to develop the Network, because of the difference of levels amongst the participating institutions. For this reason, the IBE decided to make an inquiry and present to them the following questions: how they envisage the future of the Network; what are their needs in relation to educational information and how they see the development of their participation in INED activities. A copy of the questionnaire and a summary of the answers received at the IBE until the end of last year will be distributed separately.

C - THE PRESENT SITUATION OF DOCUMENTATION AND INFORMATION SERVICES AT IBE

IBE Documentation resources

6. The IBE Documentation Centre has a collection of about 80.000 books and documents and receives 1.200 periodicals. The collection also includes complete sets of ERIC (1), REDUC (2) and IBE microfiches (280.000), an audiovisual section (300 items including films, video cassettes, slide-tape programmes and cassettes). In 1975, a computerized data base (IBEDOC) containing information on educational innovations was started, to be utilized particularly in the preparation of a periodical annotated bibliography AWARENESS LIST, in the context of the IBE project "International Educational Reporting Service (IERS)". Published at first six times a year, and later four times, this bibliography has added to the richness of the IBE data base, especially with regard to the different aspects of nonformal education. Another component of the data base, started in 1975, includes documents prepared for the International Conference on Education sessions dealing mostly with educational policy. It was only in 1980 that the computer processing of the Documentation Centre's new acquisitions started, enabling them to be included in the data base. This was the departure for the preparation of the Documentation Centre catalogue in the form of a bi-annual publication, thus giving the IBE the possibility of placing its catalogue in libraries all over the world. Moreover, in 1983 the IBE acquired a photocomposition programme which permitted the printing of the catalogue directly from the computer, thus cutting down costs and the time for its preparation. At present, the data base IBEDOC contains about 10,000 records mostly related to comparative education, educational policies and innovations. Lately, it has improved its contents in the field of in-service teacher training thanks to a co-operative project to analyse literature on this subject, established between the IBE, the European Information Centre of the Charles University for Further Education of Teachers in Prague and the Unesco Education Sector. The IBEDOC data base may be accessed on-line in Geneva and is being utilized by the IBE to answer requests for information coming from all over the world. Hopefully, it will be accessible on-line internationally in the near future.

7. Two other data bases have been built up by the IBE: the first, IBETERM, contains the descriptors for the Thesaurus in three languages, English, French and Spanish. With 12,000 records, this data base was also used last year for the input of terminology in the field of science and technology education. The second data base, IBECENT, stores information on educational institutions and has been used to produce the following directories:

- Directory of educational documentation and information services, 4th ed.
- Directory of adult education documentation and information services, 3rd ed.

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(1) ERIC: Educational Resources Information Center

(2) REDUC: Red Latinoamericana de Información y Documentación en Educación

- Directory of educational research institutions, 2nd ed.

- Directory of special education institutions.

Other reference tools have been produced from the first data base mentioned IBEDOC: (1) Current bibliographical sources in education, a bibliography of bibliographies listing all the current bibliographies, indexes, abstracting journals, in the field of education around the world; (2) List of periodicals: current holdings in the IBE Documentation Centre. About 1,200 periodicals are received in IBE, and we try particularly to keep track of periodical publications issued in developing countries.

In this chapter on reference tools prepared with computer assistance we would like to mention that since the end of last year, in co-operation with the Unesco Division of Structures, Contents, Methods and Techniques of Education, we have started a current register of studies in the field of education prepared by the Unesco Education Sector, its regional offices and other Unesco educational agencies. It is important to call attention to the fact that all the publications prepared from materials in the data bases are of a recurrent nature, thus implying a great amount of work every time they are updated.

The IBE Bulletin is a bibliographical work produced quarterly. Each issue treats a specific subject which is updated at intervals of four to five years, according to the timeliness or the topicality. We also produce materials for a newsletter, a section of which is dedicated to events related to educational documentation and information.

Finally, the IBE maintains a small project, the "Co-operative Educational Abstracting Service (CEAS)", whose main purpose is to help users to overcome language barriers, that is, the length of the abstracts prepared for the project has been calculated so that the user, in most cases, will not need to refer to the original document which, even if written in a language accessible to the user, may not be available for acquisition. The CEAS abstracts are published in two languages, English and French. The CEAS is a highly decentralized operation, since it is the institutions designated in various countries which are responsible for selecting and abstracting the documents. The choice of the participants is based on the accessibility of their languages for the international user. Until now, the Scandinavian countries, Eastern Europe, China, Japan and Israel (for documents issued in Hebrew) have been included. The selection of documents for the project should take into consideration their relevance to the field of educational policy.

For several years now, the IBE has been collecting AV materials including 16 mm films, video-cassettes, slide-tape presentations, etc., on educational projects, programmes, services and systems. This material is processed by the Documentation Centre which maintains a catalogue by subject, country and type of material.

IBE Documentation Centre personnel and material resources

The IBE moved into a new building in June 1984; thus, the Documentation and Information Unit, including the Documentation Centre is now installed in premises suited to its particular requirements. The metal shelves for books and compactus shelves for periodicals have now been extended throughout the whole Library, and the space foreseen for shelving books and periodicals is believed to be sufficient for the next ten years.

Special accommodation has been given to the microfiche collection which now amounts to 280,000 items. One reader-printer and two microfiche readers complete the facilities for consultation of this type of material.

Concerning computer facilities, the Unit now has three terminals and a small printer connected to two processing units and a main storage unit IBM 370/3083 model B24 - and IBM 370/3083 model K32) at the International Computing Centre, a United Nations agency in Geneva.

The audio-visual section of the Documentation Centre has two film projectors (a super 8 and a 16 mm), a slide tape carrousel, cassette readers and an overhead projector.

The Documentation Centre personnel consists of six professionals, five semi-professionals and two secretaries.

Standardization

Considering that standardization is of outstanding importance for the exchange of information, the IBE has always given attention to this activity by following, in the first place, the ISO (*) recommendations in the field of documentation and information. Compatibility with Unesco is also necessary in the context of Unesco's development of an integrated information system, and we have given much attention to this point, particularly in relation to the utilization of computers. In accordance with this point of view, the IBE adopted in 1979 the computer software developed by Unesco, CDS/ISIS, details of which are given in a separate document.

IBE Information services

8. Local services are provided to users of the Documentation Centre, the average number of utilizers being about six hundred a year. Our users are mostly postgraduate students, student teachers, professors or researchers. We also receive visitors from other international organizations and occasionally from other countries who spend a few days with us, or even weeks, to utilize our documentation resources. However a considerable amount of local services are provided to the IBE itself; all the bibliographies and quotations appearing in the IBE studies are checked and revised in the Documentation Centre. Bibliographical searches and other information work are produced in answer to requests from the Unesco Education Sector.

(*) International Organization for Standardization

A considerable part of the information work accomplished by the Documentation Centre is that addressed to Member States in answer to requests arriving by mail (letters, telex, telegrammes) or by telephone. To attend to these requests (an average of two thousand a year), the IBE sends bibliographical searches, computer searches and photocopies or microfiches. When a request is sent from a developing country, where local resources are not appropriate, the IBE, instead of providing a bibliography or a computer print, will provide a package of relevant documents. As a special service, the IBE regularly distributes books and documents in the field of education to educational documentation centres in developing countries. Small equipment, such as microfiche readers, card duplicators, etc., is occasionally donated to these documentation centres.

IBE Documentation and Information Unit Users

Who are the IBE information users? First to be mentioned are the IBE staff themselves, who receive documentation and information support in the course of their daily work. In particular, the IBE Publications Unit obtains a certain amount of work from the Documentation Centre, involving the verification of all the bibliographies and quotations appearing in IBE publications. Specialists of the Unesco Education Sector often request our services for the preparation of bibliographies, the carrying out of bibliographical searches or the processing by computer of reference works. Other Unesco educational agencies and international organizations occasionally request our services. Outside the international environment we have two major groups of users: students and professors at the Faculty of Education or other educational institutions in Geneva; local researchers and specialists from the surrounding geographical area or specialists passing through Geneva. The last and largest group consists of administrators, researchers, teachers, students, journalists, publishers, etc., who use our services by corresponding with us.

In 1984, the Documentation and Information Unit handled 1,330 information transactions. This figure is below the normal average, as the Documentation Centre was closed for three months from 1 June to the end of August due to a move to new premises. On this point, it should be noted that a great number of information requests involve very time-consuming bibliographical searches. The following tables will give an idea of the geographical origin of the requests received as well as the type of users.

Distribution by geographical origin

	1983	1984
International	147	85
* Western Europe	578	423
Eastern Europe	96	109
Latin America	198	246
North America	78	88
Africa	185	157
Asia/Oceania	123	99
Arab States	109	114
Total	1514	1321

* The number of users in Western Europe includes local users.

Distribution by type of users

	1983	1984
Ministries of Education	30	65
Other Ministries	6	9
Teachers	76	41
Administrators	4	10
Students	240	149
Researchers	98	76
Doc. Centres/Libraries	420	435
Nat. Commissions/Perm. Delegations	30	17
Unesco HQ	34	39
Other Unesco	30	32
IGO's	109	61
NGO's	21	25
Universities	108	91
Publishers	16	7
* Others	289	264
Total	1514	1321

* Please note that the great number of 'others' refer to local users who did not fill out their statistical forms satisfactorily.

When answering questions, the Documentation Centre also provides books and documents, photocopies or microfiches, particularly to developing countries. In 1983, the total items distributed amounted to 7,839 and in 1984 to 17,826.

D - IMPACT OF PAST EXPERIENCE AND FUTURE DEVELOPMENTS

9. Since 1978, the IBE in planning and developing its documentation and information services, has used the guidelines established by Recommendation 71. This same orientation should be taken into consideration for the future development of the Network.

The Recommendation emphasizes the principle of co-operation, as expressed in para. 1 (b):

> "Co-operative networking: in planning and developing an information system, one aim should be to share available resources by creating a network of centres and institutions with information services relevant to education."

This principle implies that all Network participants should be in a position to enable the sharing of their resources. This sharing requires the organization of resources, but unfortunately this is not always the case. A consequence is that to develop the Network, attention must be given to the improvement of infrastructures, particularly at national level. On this point, the Recommendation in its section Regional and international co-operation, para. 17 (c), notes that Member States should

> "develop adequate national infrastructures which would include mechanisms for regional and international linkage and information exchange to facilitate the country's participation in regional and international networks in the field of education."

Until now, the IBE has been unable to give much support to this aspect of INED's development, the main reason being that the IBE has no operational programmes and cannot provide experts, fellowships or equipment to Member States. The IBE has, for a certain number of existing educational documentation centres, assisted in the improvement of their collections by supplying relevant documents or very small equipment to develop their services. Another problem to be faced in a certain number of Member States is the absence of awareness regarding the importance of information in educational development. Consequently, very little use has been made of other opportunities such as those offered by the Unesco General Information Programme, bilateral co-operation, etc., for the improvement of educational documentation and information services.

10. Another important problem in developing countries is the training of specialized personnel to create and maintain educational documentation and information services. The IBE has received very few trainees for in-service training, those who have been sent being national personnel who received Unesco fellowships. For the next budgetary period, the IBE has requested resources for the organization of a three-week regional workshop for personnel of INED national centres, as a means of encouraging participation in the development of national infrastructures.

How could the IBE contribute to educational administrators' awareness as regards the benefits that good information services integrated into the education system may bring? Is the organization of regional workshops the most efficient way of contributing to the training of specialized personnel in developing countries?

11. To strengthen the Network, the IBE has published a directory of educational documentation and information services, in which appear all the institutions belonging to the Network, as well as the services they offer. The second Network tool is a newsletter which serves as a liaison bulletin, giving information on events related to institutions in the Network or to educational information in general. This IBE newsletter is distributed to all types of educational institutions around the world.

Is there any other type of publication which the IBE should produce in order to improve communication among the Network institutions or between them and the IBE?

12. Based on co-operation principles, the Network requires a decentralization of services so that participants at national, regional and international levels may fulfil a number of tasks according to their respective positions in the Network. At the national level, the INED focal points should: a) disseminate information on INED activities and services; b) adapt INED products to answer particular national needs; c) keep the IBE informed of relevant national documentation; d) inform the IBE of national events in the field of educational documentation and information; e) assist the IBE in identifying local resources of use in the conducting of other IBE activities (comparative studies, dissemination of publications, etc.).

What other activities might be suggested to national Network participants, particularly with a view to making INED information services better known at the national level? What should be the role of regional centres in the Network?

13. Regarding the role of the IBE in the Network, besides that of co-ordinator, we understand it to be that of a provider of information, particularly in matters pertaining to comparative education. However, it is not of interest to Member States nor to the IBE, to expand our services indefinitely, as we cannot, and should not, take the place of national services which have their own role to play inside the Network. The same may be said for the main providers of information at the national level.

Having enunciated this principle, we would like to ask the participants of this meeting to refer to the first part of this document, which describes our documentation resources and information services. These should be analysed with the objective of making a critical review of the present situation and giving us advice for the future implementation of the Network project.

Are the reference and bibliographical products issued by the IBE appropriate for the purpose of informing Member States? Which new activities would you recommend for the Network, and which should we exclude? Which types of support (electronic or other) should be used by the IBE for the transmission of information? What could be done to improve the utilization of the audiovisual collection?

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14. There are numerous educational documentation systems and networks operational and under development in various countries and regions. In addition, a number of organizations and technical co-operation agencies are involved in setting up various kinds of education-related data bases and networks.

How can IBE relate more effectively to these efforts? Which are the other networks with which pilot efforts at closer co-operation should be explored? Should IBE have, as a long-term plan, interconnection by satellite, when possible, with these systems and networks for the sharing of data? Should IBE develop a system to share information through exchange of floppy discs with centres and networks where satellite communication is not feasible? Should IBE attempt (perhaps in co-operation with other interested organizations) to develop capacities of centres in its own network, for example to use micro-computers for control and sharing of information with IBE and with other centres in the network?

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15. Of the moment, various categories of information are stored in the IBE data base. These range from information on books, Unesco documents and periodicals in the library (the library catalogue) to bibliographical items related to IBE publications, to abstracts of research and policy publications in Member States. The generation and storage of abstracts of significant educational material from Member States is the least developed aspect of the system.

To what degree should IBE place emphasis on collection and storage of abstracts? Which kinds of materials should receive priority for abstracting? Is it feasible to ask documentation centres in the network to prepare abstracts of significant publications in their countries and to move to a system whereby they put these on floppy discs which IBE can use to feed into the data base? Would centres in the network be willing to do this in exchange for information on floppy discs from other countries?

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16. The kinds of computerized networking and sharing of information discussed in point 15, above, would imply that co-operating centres adopt a common system of abstracting and use compatible micro-computers, operating systems and floppy discs. This would also imply training of the staff to use the hardware and the systems.

To what degree would centres in INED be interested in developing such a system? To what degree would they need outside help in terms of financing of equipment and training? What funding agencies might be willing to co-operate with IBE in providing such support to develop the network along these lines?

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17. Plans for the near future include the possibility of connecting the IBE computer facilities to Headquarters and to the International Institute for Educational Planning, with the idea of allowing the educational documentalists there to directly input information into the IBE data base and to draw on the IBE data base, as needed. There may be other data bases as well.

What kinds of Headquarters and IIEP documentation materials should be entered into the IBE data base? To what extent should the IBE data base be integrated into a common Unesco data base? What steps must be taken to move towards a system understood and used by clientele at Headquarters and IIEP? How can the master data base be made more 'user friendly' so as to attract users outside the organization?

18. After discussing many possibilities for improving IBE and Unesco Headquarters information and documentation services, it will be clear that, with limited resources, everything cannot be done at once.

What should be short-term, medium term and long-term priorities for further development of the services? What are the one or two things that should be placed high on the agenda for the immediate future?

ADDENDUM

Member States which have officially designated a national institution to participate in the activities of the International Network for Educational Information (INED).

Afghanistan
Algeria
Argentina
Australia

Bangladesh
Barbados
Belgium
Brazil
Bulgaria
Burkina Faso
Burundi

Central African Republic
Chili
China
Colombia
Congo
Cuba
Cyprus
Czechoslovakia

Denmark
Dominican Republic

Ecuador
Egypt
El Salvador
Ethiopia

Federal Republic of Germany
Finland
France

German Democratic Republic
Guinea
Guinea-Bissau
Guyana

Haïti
Hungary

Indonesia
Iraq
Ireland
Israel
Italy

Jamaica
Japan
Jordan

Kuwait

Lebanon
Libyan Arab Jamahiriya
Luxembourg

Madagascar
Malawi
Malaysia
Malta
Mauritius
Mexico
Monaco
Morocco

Nepal
Netherlands
New Zealand
Niger
Nigeria
Norway

Pakistan
Panama
Papua New Guinea
Paraguay
Peru
Poland
Portugal

Republic of Cameroon

Republic of Korea
Romania

Saudi Arabia
Seychelles
Spain
Sri Lanka
Sudan
Swaziland
Switzerland
Syrian Arab Republic

Tunisia

Ukrainian SSR
USSR
United Arab Emirates
United Kingdom of Great Britain
and Northern Ireland
* United States of America

Venezuela

Zaire

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* No longer a Member State as from 1 January 1985.

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UNESCO/BIE/DOCINF/4
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Original: English

UNITED NATIONS EDUCATIONAL,
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INTERNATIONAL BUREAU OF EDUCATION

MEETING OF EXPERTS IN EDUCATIONAL
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Suggestions for topics for groups discussions

Group no. 1

a) Network models, compatibility, norms, standards

With a view to ensuring effective participation and resource sharing amongst the different components of the Network: 1) What factors of compatibility should receive due consideration? 2) What existing norms, standards and guidelines (to ensure compatibility) can be adopted by the Network and what are the new ones requiring development? 3) If new norms are needed, how may they be developed and implemented (e.g. through collaboration with specialized agencies)? 4) What manuals need to be developed for use by Network participants?

b) Coordination and management of the Network

Given the fact that participating countries are at different stages and levels of development in respect to their capacity for information handling and use, infrastructures and resources available: 1) What types or models of international networking would be helpful? 2) How may the more developed countries and centres share resources (information resources, expertise, facilities, etc.) with the less developed ones? 3) What coordination and management mechanisms need to be set up?

Group no. 2

Users, users' need service, user orientation

User sensibilization and orientation; training of users; increasing awareness of Unesco educational information services and means for the identification of these services; promotion and marketing of educational information.

Group no. 3

Systems interconnection - technology, hardware, software, standards

What information technology options can be adopted so that the least developed of the participant organizations may progressively utilize such technologies? What priority actions are needed in norms and standards (adoption, adaptation, implementation)? Preparation and utilization of operating manuals; use of appropriate technology, including online access to remote data bases and preparation of institutions operating on traditional processes and techniques.

Group no. 4

INED: Implementation phases; priority resources; resources mobilization; setting up document delivery; access; facilities; pilot projects; training of specialized personnel.

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Unesco Integrated Documentation Network; Computerized Documentation System (CDS)

Paper by the Division of the Unesco Library,
Archives and Documentation Services (LAD)

MEETING OF EXPERTS IN EDUCATIONAL DOCUMENTATION AND INFORMATION
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Unesco Integrated Documentation Network: Computerized Documentation System (CDS)

Paper by the
Division of the Unesco Library, Archives
and Documentation Services(LAD)

Introduction

The objectives of the Unesco Computerized Documentation System developed over the years 1969-1971 were primarily to achieve a) the systematic bibliographic control of the documents and publications of Unesco, its regional offices and affiliated institutes; b) to provide information for the Member States on the Unesco programme as reflected in its documentation; c) to develop information and documentation software, for use within the Unesco Secretariat, in organizations and institutions of the UN system and its Member States; and d) to act as a demonstration and training centre for the application of advanced computerization techniques in information processing, storage and retrieval. When Unesco decided, in 1975, to replace its ICL mainframe computer by an IBM model, it was faced with the problem of converting the software package it had developed so that it would operate on IBM equipment. Rather than rewrite the existing programs, it was decided to adopt an early version of the ISIS (Integrated Set of Information System) software which had been developed by the International Labour Organization (ILO) in the late 1960's.

An important consideration in making this choice was that ISIS was a system developed by a United Nations Agency and was beginning to be increasingly used by institutions in both developing and developed countries. It soon became clear, however, that a major re-design of ISIS was required, as the ILO version lacked many features available in the Unesco CDS system. Development work on ISIS began at Unesco early in 1975 and the first version of the new system was operational by the end of the same year. The Unesco version of ISIS was named CDS/ISIS.

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Structure and applications of the system CDS/ISIS

CDS/ISIS has a comprehensive collection of programs for input, management and output, running in batch or on-line mode. The key to the system is the file structure, which consists of a number of computer files that are logically related, but physically distinct. With this structure it is possible to add, modify or delete whole or parts of records using the batch or on-line mode and to keep the data base current through the use of search terms and Boolean expression. The file structure also enables users to gain access to the Master file via any element in the data base; to build indexes from descriptors, thesaurus terms, or free text; to specify sorting and printing instructions, and to create a variety of print formats for specialized types of output. One of the principal advantages of CDS/ISIS is that the same set of computer programs is used to manipulate various data bases, each of which may be composed of quite different data content. This means that expensive reprogramming need not be done each time a new project involving the the establishment of a new data base is undertaken.

By the end of 1983, Unesco was announcing release 4.4 of the CDS/ISIS system: a highly sophisticated generalized on-line information storage and retrieval system, including state-of-the art features, such as advanced file structure and access method (VSAM) powerful full screen editor for data entry and up-date, on-line thesaurus creation and maintenance, thesaurus aided indexing and retrieval, extended search language, and specialized library applications such as acquisitions and periodical circulation. The new release 4.5 announced at the of 1984 contains additional new features such as: on-line validation, help assistance, and data manipulation language.

As CDS/ISIS developed and became a reliable operational system, it began to be used more and more by other units of the Unesco Secretariat, particularly for the processing, storage and retrieval of non-bibliographic data. To date, 47 data bases are run by CDS/ISIS within the Unesco Secretariat covering a wide range of applications such as: the Unesco Mailing list which has approximately 100.000 addresses; he Unesco Personnel Roster; the DARE data bank which includes experts, institutions and research projects in the field of social sciences, as well as social science periodicals and publications reporting research findings.

CDS/ISIS system transfer

The interest raised by CDS/ISIS within the Secretariat was paralleled by an increasing number of requests for the software from institutions in the Member States and other United Nations organizations. Starting in 1977, Unesco therefore developed a programme to distribute CDS/ISIS, free of charge, to qualified non-profit institutions having the required hardware and software. To date, CDS/ISIS has been distributed to over 100 national institutions or international organizations.

After the signature of a formal transfer agreement, project personnel of the receiving institution are instructed in the operation of the CDS/ISIS system. Normally such instruction takes the form of a three-week training course designed to enable the participants to install and use the package in a relatively short time. Although, after the training course, the new installation should be autonomous and require no further direct assistance, Unesco will continue to provide technical support for each installation operating CDS/ISIS. All users are regularly kept informed of the system developments through circular letters, technical notes covering specific topics, guidelines and procedures.

Unesco Bibliographic Data Base (UNESBIB) and the Unesco Thesaurus

CDS/ISIS was primarily designed to control bibliographically the documentary output of the Organization as well as the materials received in the Unesco Library. To date, the Unesco Bibliographic Data Base (UNESBIB) - the largest data base run by CDS/ISIS within Unesco since 1972 - comprises more than 62.000 references. All documents, publications and periodicals, cited in the Unesco List of Documents and Publications (ULDP), the main printed product of the data base, are available in microfiche form in English, French and Spanish. The language of the Unesco Bibliographic Data Base (UNESBIB) is English. Each bibliographic unit processed is described on the one hand in its physical form through descriptive cataloguing, on the other hand by its content through indexing and abstracting (only certain types of documents are abstracted).

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The subject coverage of UNESBIB is as follows: education 50 percent, science and technology 10 percent; social sciences and humanities 15 percent; culture 10 percent; communication 10 percent; and information, libraries and archives 5 percent.

The basic tool used in indexing is the Unesco Thesaurus which covers all the fields of the UNESBIB. The French version of the Unesco Thesaurus was published in 1983 and the Spanish version at the end of 1984. Since that time, the Unesco Thesaurus has been kept up to date on line in all three versions. It should be added that ALECSO has requested the rights and permission to translate the Unesco Thesaurus into Arabic.

Unesco Integrated Documentation Network

Unesco is now setting up an Integrated Documentation Network, technically supported by the CDS/ISIS system.

The main objective of the Network is a more rational use of the Organization's documentary resources, which are rich and numerous, in order to bring them to everybody's attention. The Unesco Integrated Documentation Network has been defined as a decentralized system which on the one hand uses common processing methodology and retrieval tools (CDS/ISIS decriptive cataloguing, indexing and retrieval manuals), and on the other hand enables Unesco Sectoral Documentation Centres, as well as the documentation centres in Unesco regional offices and affiliated institutes, to control and process appropriate materials, mainly external materials which it receives from various sources and which have not already been processed by the Central System.

The Sectoral Documentation Centres and Regional Offices and affiliated institutes' documentation centres reflect the "discipline-oriented" nature of the Unesco structure: education, science and technology, social sciences and humanities, communication, culture, information, libraries and archives. As a result, the Unesco Integrated Documentation Network aims at establishing a balance between the centralization and the decentralization of documentation services, allowing the Organization to first channel the documentation flow along the lines of a given discipline and to make a local decision on what to put into the data base; secondly to ensure the speedy processing of new materials and the up-dating of the data bases; and finally to promote a close relationship with users by effectively serving them with relevant information. Each documentation centre participating in the Network will provide: 1) Reference and inquiry services that answer requests and/or provide relevant Unesco publications and documents; 2) Bibliographic services, including (a) manual/computerized literature searches, (b) computer-produced bibliographies (retrospective search services), and (c) selective dissemination of information (SDI) services; 3) Dissemination of information, including distribution of accession lists prepared by the documentation centres and/or provision of lists of secondary literature; 4) Adjunct services, including (a) editing (microthesauri, directories, newsletters, etc) and(b) provision of mailing lists, list of meetings, experts, etc.

The Unesco Thesaurus is considered the basic terminological reference work to be used within the Unesco Integrated Documentation Network, either alone or in conjunction with other thesauri designed to cover specific subject fields. It should be noted that Unesco and IBE - IBE having adopted the CDS/ISIS system in 1981 - have agreed to make the Unesco Thesaurus and the IBE/Unesco Education Thesaurus compatible.

CDS/ISIS for micro and minicomputers

In view of the extension of the Unesco Integrated Documentation Network to the regional offices and the increasing need for smaller libraries or documentation centres in developing countries (which can obviously not afford the cost of mainframe computers) to have access to modern information handling technology, Unesco has a version of CDS/ISIS adapted to run on micro and minicomputers. Particular attention has been paid, in developing this version, to ensure , to the largest possible extent, its "portability", i.e. its ability to run not only on different manufacturers' hardware, but also to run on different types of computers. The selected design, in fact, allows the system to run on micro and minicomputers and mainframes as well.

The first release of this version is now available. This release runs on DEC PDP 11 compatible equipment under the operating system RCX11-M and IBM PC under DOS. However, as the programs are written in PASCAL, a good level of portability will already exist. The CDS/ISIS micro/mini version is a new driven system with a short description of each menu option as well as possible prompts that you may receive. To choose one of the options you just need to enter the corresponding option identifier character. All system programs are fully interactive and multilingual. The latter facility is particularly interesting as it allows you to select the language in which the system menus and messages will be displayed (provided of course that the language is implemented at the installation).

A second version is foreseen for the UNIX operating system to further improve its portability. Like the mainframe version, the CDS/ISIS micro/mini version will also be made available free of charge to qualified non-profit institutions in the Member States. The micro/mini version is fully compatible with the version currently used in Unesco and in the Member States, it has the same capabilities for handling the ISO-2709 standard format for information interchange as well as the UNISIST Reference Manual specifications.

This CDS/ISIS software develppment will enable smaller libraries in the Member States and Unesco Regional Offices, participating in the Unesco Integrated Documentation Network, to have easy access to computerized information processing technology and methodology already operational in the Secretariat - The Unesco Bibliographic Data Base (UNESBIB), the Unesco Personnel Roster, Unesco Mailing lists, etc. - and also to use the same hardware for other applications, such as text processing and office management. Work is being undertaken to establish software suitable for processing non-Roman characters, such as Russian and Arabic.

In conclusion, in addition to the transfer of the CDS/ISIS software, the Division of the Unesco Library, Archives and Documentation Services makes the Unesco Bibliographical Data Base (UNESBIB) and the Unesco Thesaurus in machine-readable form, available free of charge, to institutions with adequate computer facilities in the Member States and regional and international organizations.

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Promotion of information technology applications in Third World countries: PGI's role

Paper by the Unesco Division of the General Information Programme (PGI)

UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANIZATION

PROMOTION OF INFORMATION TECHNOLOGY APPLICATIONS IN THIRD WORLD COUNTRIES : PGI'S ROLE

1. INTRODUCTION

The paper by Jacques Tocatlian indicates that Major Programme VII . Information Systems and Access to Knowledge, one of the fourteen major programme areas into which Unesco's activities are to be channelled during the Second Medium Term Plan period (1984-1989), has been designed to :

- facilitate general access by and flow of information among Member States, especially the developing countries, for supporting their development programmes ; and
- enhance the capacity of Member States to exchange, store, process and use information in their development activities.

A guiding principle of the programme is the enhancement of the self-reliance of and technical cooperation among, developing countries. Within this framework, based on the experience gained in the seventies and during the 1981-1983 plan period, PGI is placing emphasis on :

- operational activities ;
- promotion of the applications of technology in information handling ;
- use of numerical, statistical and other factual data and systems needed for the purpose ; and
- information analysis, consolidation and repackaging to meet different user requirements.

Computer science and related technologies have become integral part of scientific and technological research. They are influencing the transformation and reorganization of several areas of human activity, for example : administrative data processing and computer-aided management ; computer controlled machine operations and manufacture ; computer-aided design ; office automation ; computer-aided instruction ; electronic publishing, etc. Such activities are spreading slowly but definitely in several developing countries and, no doubt, they influence directly or indirectly information technology* applications in library and bibliographical information work. However, it is to be noted that in the activities under PGI, information technology is essentially a means or tool applied to one of the many fields in which it can be applied, namely, to library work and processing of information to facilitate the flow and access to information.

Information technology (IT) applications in developing countries currently include :

- library applications such as circulation control, documents acquisition management, serials control, cataloguing, preparation of union lists, word processing, generation of directories and reports ;
- information services applications such as referral, SDI, retrospective search ;
- preparation of local data bases, some of which may be used in the library documentation and information services mentioned ;
- on-line access to remote data bases using national and international telecommunication networks.

Computer messaging systems, electronic mail, teleconferencing, videotex, etc. have been successully experimented on.

The developments are encouraging and should be fostered. In this context, there are some issues, problems and challenges that require early attention from all concerned lest they become, in the long run, constraints to cooperative activities in the information field. The next section briefly discusses these issues.

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* The term 'information technology' as used here denotes the combination and integration of computer technology, telecommunications, audiovisual technology and graphics technology applied to information processing and management.

2. ISSUES, PROBLEMS AND CHALLENGES

The issues and problems in the area of information technology applications in developing countries relate mainly to :

- management of database and information systems development ;
- hardware options ;
- software options ;
- data communication facilities ;
- national socio-political, economic and cultural factors ; and
- information policy.

2.1 Management of database and information systems development

(a) In many cases local database activities and information systems are planned and developed by data processing personnel with little or no input and participation of information personnel. This results in systems that are not adequate for library and information work and non-standard with limited potentia for systems interconnection and information exchange.

(b) Often the information users (end-users) are given little opportunity to interact with system designers and make inputs at the different stages in the planning and development of the systems. As a result, few of the locally developed systems are really "user-friendly".

(c) Few of the local systems have built-in mechanisms to collect data on the use of the data bases and problems thereof. Such data are important in planning information use promotion activities, information services marketing, information policy formulation, for systems development and for securing the commitment of management to support and promote information systems.

(d) In many developing countries post-sales services and maintenance of computer hardware, supply of spare parts, tapes, discs and cassettes and provision of other logistic services are not satisfactory. Problems due to the frequent shut down and failure of electricity supply, considerable fluctuations in voltage, and humid, dusty and poorly ventilated and air-conditioned environments have to be reckoned with.

(e) Studies have shown that information and information services are underutilized in many institutions in developing countries. The reasons are many and complex. One of them is the lack of or poorly done information use promotion and information marketing activities oriented to the different categories of users. Development planners may not be sensitized to the factors influencing the development of effective and efficient information systems ; consequently they may not give a high priority and allocate adequate funds to information systems and services.

2.2 Hardware options

a) There are several types and brands of computers in the mainframe, mini-, and micro-series on the market. Some countries import and distribute under the same name as the original ; others distribute under different labels some computers are locally assembled ; a few are locally produced. National considerations, price, pressure of sales tactics, quality standards, etc. complicate the choice of hardware.

b) In some cases there is a vendor "lock-in", that is dependency on the hardware of a single vendor. There may be no other option in a country ; on the other hand, sometimes, the problem arises because the choice of hardware is left to the data processing personnel without taking into consideration of the needs of library and information processing requirements. Such dependency could restrict future development possibilities.

c) Some developing countries have regulations on hardware acquisition from abroad or those produced locally. On the other hand, there are also restrictions and conditions imposed by countries on supply of computer hardware and software to other countries. Such regulations could limit the options for an institution to obtain the more suitable hardware for library and information processing applications.

d) There is an influx of microcomputers on the market in developing countries. These being relatively less expensive many library and documentation centres are procuring them for their own use. The issues discussed at (a) to (c) also apply equally to the use of microcomputers. Perhaps the problems are much more visible and widespread now. Sales competition among microcomputer vendors sometimes results in institutions getting low cost equipment or even donated equipment which may not be the more suitable ones for application of appropriate software packages and compromises in system design and software selection have to be made.

2.3 Software options

a) Software packages obtained from outside, especially those prepared for other data processing work, are not at times adequate for library and bibliographic information work ; modifications may be necessary to suit local requirements and conditions and this can be expensive in addition to the cost of procurement of the original package. Some of the packages do not incorporate international bibliographic standards or can be implemented only on particular computer models. These factors limit the choice among market-supplied software packages. Also, until recently adequate information on the software packages more suitable for library and information work, was not available. Hence, institutions in developing countries have tended to develop their own applications software. They also perceive a need to develop local capability in applications software design.

b) Software developed in-house in developing countries rarely incorporate existing bibliographic standards ; they lack portability, and have limited database management capability and user-friendliness features. This situation again is partly due to the data processing personnel involved in software design not being fully aware of the needs of information and data exchange, resource sharing, networking and other cooperative activities in library and information services.

c) For those who wish to obtain (or develop) good software the question is what criteria to apply, and non-availability of adequate information on good model software packages, and need for expertise in system design, software engineering, etc.

2.4 Data communication facilities

a) At present in most of the developing countries the national telecommunications infrastructure, especially public data communication networks, needs considerable improvement and upgrading of the technology to meet the growing demand for communication facilities in all sectors of the national economy. Such an infrastructure is vital for future networking, information and data communication and sharing.

b) Systems are often not designed to be accessed by remote slow speed terminals. In developing local data bases access by a variety of terminals need to be ensured.

c) High telecommunication tariff rates discourage use of the facilities for information access, retrieval and exchange.

d) National policies and planning relating to telecommunications development do not always give adequate consideration to the requirements for digital data communication.

e) Exchange of data in machine-readable form (e.g. magnetic tape, microcassette) across national boundaries may encounter restrictive customs and postal services regulations. Something similar to the Florence Agreement for printed materials is needed to cover other media used in data transfer.

f) There are instances of the use of locally created hardware interface rather than the standard interfaces and protocols. This adds to the problems of systems interconnection.

g) Establishment in developing countries of online access to data bases abroad, use of microcomputers for downloading segments of data bases accessed, and various other forms of data and information transfer will soon have to contend with the variety of issues and regulations relating to transborder data flows.

2.5 National geo-political, economic and cultural factors

The national information infrastructure is an integral part of a country overall development infrastructure ; each influences the other. The information infrastructure has to fit into and operate within, the framework of a certain geo-political, economic and cultural milieu. The socio-political, economic and cultural characteristics of the country influence and are reflected in, the information infrastructure. Thus, the development of information technology applications in the information infrastructure of the country is influenced by such national factors as :

- the general level of development - e.g. in education, research and development, industrialization, commerce, and other sectors of the economy ;
- the general attitude of the government and the private sector to the application of technology in human activities ;
- the perception of the work force on the types of impact that the introduction of modern technology will have on their respective work areas and how well the authorities are prepared to allay the false fears and mitigate the undesirable effects of new technology and are able to handle the transition problems without social unheavals ;
- the extent and rapidity with which technology education in general and computer literacy in particular is introduced and spreads ;
- the extent and rapidity of development of information-intensive sectors/activities (e.g. business and commerce, research and developme etc.) ;
- the pace of development of the information industry in the country ;
- the level of and regulations relating to, import of technology in the country.

These geopolitical and development factors have to be kept in mind in attempting to promote information technology applications in developing countri which are at different stages of development and have different socio-political economic and cultural structures.

Closely related to national cultural factors is the need to provide for the handling of information records in a variety of languages and in non-Roman scripts. There is also genuine desire to do things in the country itself rather than import, seen as the more appropriate way of fostering self-reliance.

2.6 Information policy

Several of the issues discussed in this section relate to the lack of national/institutional mechanisms to coordinate and take into account the needs and interests of several different groups - e.g. information users, information intermediaries, information specialists, computer, telecommunications and related technologies, national socio-political, economic and cultural factors, in the planning for introduction and development of information technology applications. A national policy on information could help, but in many developing countries it does not exist. Therefore, information technology applications in the country become ad hoc and uncoordinated making cooperative activities difficult.

3. PGI ACTIVITIES FOR PROMOTING INFORMATION TECHNOLOGY APPLICATIONS

3.0 General framework

PGI is aware of the problems just mentioned and of their complexity. With limited resources in relation to the requirements of Member States and within the framework of international conventions and procedures, PGI has been contributing to the solution of the problems. It does not pretend to have solutions to all problems of all countries. As societies evolve and change some issues become less important, while others compel immediate attention and new issues emerge.

The principal role of PGI is to act as a catalyst in sensitizing Member States to the problems and issues involved, identify opportunities for action and coordinate activities at national and international levels in the attempts to find solutions to the problems. It performs these functions through consultations and collaboration with other units of Unesco, the Member States, the United Nations and its specialized agencies, inter-governmental and non-governmental organizations and individual specialists. PGI's activities in the promotion of IT applications, as in other programme activity areas, are advised on and reviewed by expert groups, and approved and mandated by the PGI Intergovernmental Council and Unesco's General Conference.

PGI activities for the promotion of IT applications are obviously closely linked to and draw from, the projects and activities of the three subprogrammes, mentioned in Mr. Tocatlian's presentation, into which Major Programme VII is divided. Thus, the first subprogramme provides for a continuation of efforts made earlier to develop technical and normative tools helpful in establishing library, documentation and information services, their interconnection and networking for sharing and exchanging of information resources. This is seen to be particularly important in designing systems to ensure optimal use of new information technologies in developing countries. The second subprogramme which provides for the strengthening of libraries, information, data and archives centres, systems and services of all kinds, including the promotion of information policies and education and training of information personnel and users, constitutes the infrastructure for the implementation of information technologies.

Again, as in other programme activity areas, IT applications are promoted in a number of ways. For example :

- through support of consultancy and advisory missions to Member States or specific institutions to assess current situation, to prepare feasibility studies, or to advise on implementation of specific project activities ;
- provision of fellowships for training ;
- supporting infrastructure development including implementation of computer facilities, information processing activities, database development, online access, etc. ;

- organizing and supporting seminars, workshops, training courses, demonstrations, etc. to facilitate exchange of information and experiences and technology transfer on IT applications ;
- financing the procurement of equipment, such as microcomputers and reprography equipment, teaching aids, etc. within the limits of available resources ;
- supporting the development of guidelines, norms and standards, portable software packages, etc. usually in collaboration with other organizations ; and
- negotiating with organizations and institutions for obtaining facilitie on favourable terms to developing countries.

3.1 Overall strategy

PGI's overall strategy in this area may be said to be based on three key concepts :

- increasing the awareness of Member States about developments in the fiel
- supporting training of specialists in modern methods of information handling ; and
- promoting/supporting the actual use of information technology in given national/institutional infrastructure.

3.1.1 Increasing awareness

PGI supports the preparation and dissemination of study reports and other documents on various aspects of information technology. These may be of the following kinds :

(i) general information materials useful for updating information personnel or for use by students of information technology, for example :

- Application of Minicomputers and Microcomputers to Information Handling, prepared by José-Marie Griffiths. 1981 Nov.
- The Use of Satellite Communication for Information Transfer, prepared by the International Institute of Communication. 1982 Feb.
- Lineas Directrices para la Planificacion y el Establecimiento a Nivel Nacional de Redes de Teledocumentacion, prepared by the Fundacion de la Red de Informacion Cientifica Automatizada (FUINCA Madrid. 1983 July (to be released shortly).
- Compatibility Issues Affecting Information Systems and Services, prepared by F. Wilfrid Lancaster and Linda C. Smith. 1983. Sept.

(ii) Publication(in English, French and Spanish) and wide dissemination of the periodical Unesco Journal of Information Science, Librarianship and Archives Administration. The Journal not only published articles on information technology in general but also experiences in using technology in developing countries. Unfortunately, due to financial constraints, the journal had to be discontinued in December 1983.

(iii) Project or mission reports, though relating to a specific region or project, but with wider interest and applications. For example :

- A proposed Common Format for Existing and Projected Computerized Bibliographic Information Systems/Caribbean region/... prepared by Harold Dierickx. 1982.

(iv) Reports and technical materials based on experiences in specific Unesco projects but of wider interest and applications. For example :

- Online Access to Remote Data Bases : An Experiment in User Sensitization by A. Neelameghan and Ma. Divina Pascua-Cruz. J. Infor. Sci. 7 (1983) 107-115.

3.1.2 Training of specialists

For PGI, activities for the education and training of information specialists and users is a priority area. Suffice to mention here that in recent years the training activities have in an increasing number of cases included information technology applications. The personnel training may relate to a specific library automation or online access project : or to use specific hardware and software ; it may be a seminar, workshop, demonstration, or short course on some aspect of information technology - e.g. preparation of local data bases, online access, microcomputer applications, etc. or development and implementation of a course module in information technology in a graduate programme in information studies ; or development of teaching aids for information technology; or provision of equipment and software packages for use in training.

3.1.3 Infrastructure projects incorporating information technology.

Again, in recent years, an increasing number of infrastructure development projects in Member States executed by PGI either out of its own Regular Programme Budget or using extrabudgetary sources, include information technology application components, such as missions to advise Member States on the planning, design and implementation of computerized systems, hardware an software selection and procurement, negotiations with suppliers, vendors and other agencies ; evaluation of computerized systems, etc. ; or assess data communication facilities and potential in a country or in a region.

4. SOME SPECIFIC ACTIVITIES

Within the general framework and overall strategy mentioned, the following are examples of specific activities of PGI in promoting IT applications in developing countries vis-à-vis the problems and issues enumerated earlier in the presentation.

4.1 Norms and standards

Promotion of the adoption or adaptation of existing norms and standards or supporting the formulation of new ones as may be necessary for information handling, e.g. :

- guidelines for the preparation of monolingual and multilingual thesauri to ensure a first level of structural compatibility among indexing languages used in local data bases ;
- UNISIST Reference Manual for machine-readable bibliographic descriptio and for the description of research projects and institutions, to ensure compatibility in record formats ;
- a Common Communication Format for the exchange of information in machine-readable form ;
- UNISIST Guide to Standards for Information Handling, including those applicable to computerized systems.

4.2 Software

PGI-UNISIST International Inventory of Software Packages in the Information Field (1983) is a useful tool for identifying software packages for specific information work and for use on specific types of computer.

There are software packages suitable for retrieval and management of bibliographic and numerical information and library work. Few of them, however, meet all the requirements ; they are expensive for developing countries ; some are implementable only on specific brand of computers ; others require modifications to suit local conditions and requirements. A few packages of general utility can be obtained under interesting conditions for developing countries - e.g. the CDS/ISIS developed and maintained by Unesco, runs on IBM main frames and compatible machines , and is provided free of charge to Member States along with training and installation. The MINISIS developed by the International Development Research Center of Canada, runs on HP 3000 series of mini-computers and is provided free of charge to developing country institutions.

The use of microcomputers in library and information work is spreading in developing countries. But most of the software available have been developed for specialized small-scale applications. Only a very limited number of generalized packages making use of the potentials of larger micro-computers are available under terms that encourage their wide use in developing countries Therefore, in its Second Medium Term Plan, PGI has given priority to support the preparation of a generalized software package for micros adequate for a variety of library and information service applications. The core package (2) tested in different institutions provides for local input and output and data base management. Basic communication functions (asynchronous communication through modems linked to telephone lines or packet switching networks) and format conversion would be part of the general input and output functions. The core package is also developed to handle a number of library functions. During [illegible]85-86, several other functions will be added. The software, which will be made available to developing countries under interesting conditions, is made portable on a variety of micro-processors (Z80, Z80A INTEL 8088, 8086, LSI11) with or without the usual operating systems such as PC/M and MSDOS. The architecture of the system is such that the only interface of the standard software package with the hardware is at the level of the p-code (pseudo-code) interpreter which reacts directly with the micro-processor. The new development in CDS/ISIS for use of the software on mini- and micro-computers is the subject of another paper to this meeting.

4.3 Hardware and logistic services

With a view to assisting institutions in developing countries in the selection of computers and other information handling equipment, PGI is providing support to the International Centre for Information Handling Equipment (IRCIHE) in Zagreb, to prepare an inventory of logistic services (including supply of spare parts, engineering and consultancy services) for computers and related equipment and basic guidelines for the installation and maintenance of such equipment. The directory and guideline are expected to be available in the next few months. An international seminar on logistic services is foreseen for 1985.

4.4 . Telecommunications

The status of telecommunication facilities and data communication/public data networks in a number of developing countries is being studied with a view to formulating projects and programmes for the development of such facilities essential for systems interconnection and information exchange.

Also, in association with other sectors of Unesco, PGI has been considering issues relating to telecommunication tariffs.

4.5 Global issues

The Second Medium Term Plan provides for study, in association with other organizations, of some of the special problems relating to the use of information technology - e.g. information overload, obstacles to the efficient use of technology, barriers to online access to information and data, the impact of electronic publishing, transborder data flow issues, etc. - especially in the context of developing countries and their interactions with the industrialized countries.

4.6 Information policy

PGI has been assisting Member States in the formulation and adoption of national information policies. More attention will be paid to cover policies relating to information technology applications, telecommunications development and related matters.

4.7 Regional approach

A regional approach is helpful in certain programme activities to supplement national programmes. Activities to promote information technology applications appear to be suitable for a regional approach. Reasons for the regional approach in PGI activities include :

- the possibility for more productive use, through sharing among several countries, of the limited international assistance available ;
- the opportunity for stimulating self-reliance and mutual assistance among developing countries in a region, especially where a framework for cooperation in the political, economic, scientific and cultural fields already exists ;
- sharing of experiences and expertise among the countries in the use of information technology whether locally developed or obtained from abroad.

5. CONCLUDING REMARKS

This brief presentation, I hope, has indicated to you some of the problems and issues relating to information technology applications in developing countries as perceived by Unesco from its experience in developing information infrastructures in those countries ; as well as the general framework, the overall strategy, and some specific types of activities of the Organization in attempting to help Member States to find solutions to the problems. Obviously, the effectiveness of international action will largely depend on the extent of cooperation received from Member States - both developing countries and developed countries. By and large, this has been satisfactory. In its efforts to promote the use of IT applications in developing countries, Unesco looks forward to the furtherance of such cooperation.

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Unesco's General Information Programme for the 80s

Paper by the Unesco Division of the General
Information Programme (PGI)

UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANIZATION

UNESCO'S GENERAL INFORMATION PROGRAMME FOR THE 80'S

It is common knowledge that, for historical, geopolitical and economic reasons, the world is at present divided into information-rich and information-poor countries. This is one of the factors causing the marked world imbalances which are the symptoms of malfunctioning in modern societies.

We are all familiar with the information explosion which has taken place during this century, with its spectacular increase in the production of printed matter every working day, that is, 2 million titles each year, and by 1985, it is estimated that this figure will be four or five times greater : 8 to 10 million scientific and technical documents will be published. This increase in the volume of information has created a need for information storage and distribution systems. During the last ten years, most countries have taken the necessary steps to establish or develop various systems for storing and transferring specialized data.

The acute problem at present is the complexity and volume of information which will undoubtedly grow over the next ten years. Its processing and distribution call for increasingly powerful and sophisticated kinds of technology, which are gradually supplanting traditional processes. Thus, computerized data bases have been set up, especially in industrialized countries. But of the 900 bibliographical and numerical data bases now available on-line internationally, less than one per cent are produced in the developing countries. Access by all nations to the whole range of these data bases, which have become a vital source of information would seem essential to the progress of individual societies and the general advancement of human knowledge.

The information produced by the developing countries as a result of practical activities and research in the socio-economic, scientific and technical fields is poorly organized and only partially covered by data bases in this kind. It is therefore difficult for both national and international users to gain access to it. This information is contained in national publications and journals and in official reports that are generally not included in the various existing data bases. Because of this, both the developing countries and the world community are being deprived of resources that are vitally necessary for a proper understanding of the various problems affecting people's lives and for developing strategies to overcome them.

It is therefore essential that developing countries should be able to use other countries'data bases, as and when they need, and at the same time set up data bases and data banks of their own, at the national and regional levels. A proper organization of their local information would also enable them to become more actively involved in international exchanges of information.

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The United Nations Conference on Science and Technology for Development (UNCSTD, Vienna, 1979) and other recent international meetings stressed the importance of stepping up operational assistance to developing countries in order to give them access to a wealth of varied information, and recommended the establishment of a global information network, the structure of which has yet to be determined.

These proposals are the outcome of the wide-ranging deliberations which led to the establishment of the UNISIST Programme. This Programme, launched on 1 January 1973 in accordance with a decision of the General Conference of Unesco, calls for "Co-ordinated and sustained international action to facilitate transfer of scientific and technical information for the economic and social development of nations". In 1979, the UNISIST II Conference expanded the scope of that programme to include all scientific, technological, economic and social information useful for development.

The number of projects for international, regional and subregional information systems and networks is increasing steadily. Unless all these efforts at bibliographical control of information are coordinated, compartmentalization and disorder are likely to result. In the interest of the international community as a whole and in order not to impede the establishment, in accordance with Member States'wishes, of a worldwide network, these systems and networks should be developed in accordance with standardized methodologies that will ensure their compatibility and interconnection. This is another important aspect of PGI's work.

However, setting up the machinery necessary for the transfer of information - services, systems and networks - will not by itself guarantee universal access to information. Many obstacles, not all of them technical, still remain to hinder the freer and more balanced flow and circulation of information throughout the world.

Convenient access to information is a requirement that has long been recognized and Unesco has repeatedly called for the elimination of the linguistic legal, administrative and financial barriers that still impede its flow. The causes of the inequality of access to information sources are not only technical, but also economic, cultural and even political. While this question is of particular importance for the developing countries, it is equally important for the industrialized countries, where there are still many restrictions on the circulation of information both within and between countries.

Among the obstacles preventing convenient access to information is the high cost of the new data processing and telecommunications technologies used for handling information. The poorest developing countries may therefore find themselves unable, without recourse to external aid, to set up the infrastructure necessary for the installation of automated systems and networks. However, the new technologies raise complex legal problems, especially in matters of copyright.

The industrialized countries at present enjoy a kind of de facto monopoly of information, affecting both its substance and the technical means of circulating it. As a result, the transfer of information technologies and of information itself to developing countries may be hindered by restrictive practices, but it may also put developing countries in a position of dependence on privileged suppliers.

The developing countries are not the only ones affected by restrictive practices inhibiting the free flow of information. Such practices are also found in relations between industrialized countries and within individual countries. One can only stress the urgent need to promote practices that are more liberal and in conformity with the general interest, so as to ensure the broadest access possible to all sources of information.

In the wake of the Third World's accession to increased political and economic power, and through the quest for the adjustments thus rendered necessary, the developing countries'information needs have become more apparent. New forms of evaluated information are now requested ; tertiary information designed to meet the demand of specific groups of users is called for ; attention is focused on popularization and liaison services. These countries are becoming increasingly aware of the fact that specialized information is essential to their economic and social development and that it is an indispensable factor in the rational use of natural resources, the development of human resources, scientific and technological advancement, progress in agriculture, industry and services, the blossoming of culture and the enhancement of social well-being. It is because they also recognized this fact that the Member States of Unesco have decided to develop a special programme designed to facilitate access to information.

Unesco considers that the control and use of information depend on the application of a number of basic principles which underlie PGI's strategy of action, namely, a guarantee of ready access to both national and international information for all categories of users ; the systematic elimination of obstacles to the free flow of scientific and technical information ; the availability of all of the normative tools and technical resources required to establish the machinery and create the framework for information processing and distribution, chiefly through the adoption of advanced data processing and telecommunications technology.

This is why the Organization, in close collaboration with its Member States, Associate Members, and International Intergovernmental and Non-Governmental Organizations, has drawn up its Medium Term Plan for 1984-1989. This plan, which was adopted by the General Conference at its 4th Extraordinary Session, held in Paris in December 1982, consists of 14 Major Programmes and a final chapter devoted to Programme Support activities. The Major Programme of concern to us here is the seventh, which addresses the issue of information for development. Its implementation is the responsibility of the Division of the General Information Programme, or PGI, as it is known in Unesco - PGI being the acronym of the Division's name in French : Programme général d'information.

The object of PGI's Major Programme is to facilitate general access to information, to promote the free flow of information, and to expand Member States'capacity to exchange, store and use the information needed for their development. With this end in view, particular emphasis is laid on the development of the normative tools required for data processing, the application of new technologies, particularly data processing, the strengthening of national, regional and international information systems and services and their interconnection within a flexible worldwide network.

The Major Programme VII is divided into three programmes. The first aims at the improvement of access to information through the application of new technologies, standardization and interconnection of information systems. It provides for continuation of the efforts already being made to develop the technical and normative methods and tools needed for the establishment of information services and systems. The application of these standards is a prerequisite to the development of compatible systems and for their effective interconnection.

The second programme aims at the establishment of infrastructures, the development of policies and the organization of the training required for the processing and dissemination of specialized information. It provides for the setting up or strengthening of library, archives, documentation, analysis and referral services and numerical and bibliographical data banks, as well as for the organization of training programmes for information specialists and users. This dual approach is essential because it ensures that national resources are organized along efficient lines and thus enables each country to make full use of locally available information and to take advantage of the resources of the various information services and systems available at the regional and international levels.

The third programme, of which the implementation is the responsibility of LAD (Unesco's Library, Archives and Documentation Services), provides for the collection, organization and presentation of information in Unesco's fields of activity and its circulation within Member States and within the Secretariat.

The first programme deals with improvement of access to information, modern technologies, standardization and interconnection of information systems.

"The need to develop all the standards, rules, methods, principles and techniques governing the processing and transfer of specialized information, particularly through the application of modern computer and telecommunication technologies (the conceptual framework of UNISIST), and to apply them to the development of compatible operational information systems is today more crucial than ever.

During the last ten years, there has been a considerable expansion of the application of modern computer and telecommunication technologies to the processing and circulation of specialized information. The automatic processing of scientific and technological information has become widespread, and the methods of interrogating data bases have been refined. The computer storage of information and access in the conversational mode to data bases are currently used by thousands of bodies in the industrialized countries, and the developing countries, on whose behalf special efforts will be made, are also beginning to adopt them. Such applications offer all countries the possibility of access to huge bibliographical and factual data base complexes through connection with the host centre of their choice via international telecommunication networks.

The organization and exchange of data call for greater efforts to create and promote the use of normative tools. Having regard, moreover, to the advances being made in modern technology and their application to the processing and transfer of information, and also to the wishes expressed by Member States, it also seems desirable to give the activities of UNISIST an operational dimension so as to help Member States to establish information systems and services and to offer them the opportunity of mastering standardization techniques and new technologies.

Various technical options are open to countries wishing to apply modern technologies to the use of internationally accessible data bases, e.g. the possibility of using, on their own computers, the magnetic carriers of these bases, selected to suit their own needs, or the possibility of connecting up with transmission networks via host centres, through the use of telematics technology.

These options admittedly involve many difficulties. Initial investment and equipment maintenance costs are considerable. In the case of link-ups, search fees are very high, and a variety of training programmes are required to ensure not only that the computerized and telematics systems introduced function properly but also that they are fully exploited by the users, who must be taught to handle these new procedures. It is also difficult to choose between the very large number of data bases currently available (those accessible in the conversational mode are estimated to number some 900); and, in the case of a connection with a transmission network, agreements often involving difficult negotiations have to be reached with the postal and telecommunications authorities of the countries concerned.

There is a need to encourage, particularly in the developing countries, a movement towards integrated information systems possessing their own data bases and making use of the data bases available internationally. Such an approach would enable these countries to select and organize information according to the needs of their users and to arrive at the position where they can usefully exchange their own data within the various systems.

It is also important to optimize national efforts by establishing at the regional level, and in specific scientific and technological fields, functional links between national systems for the storage and dissemination of information, thereby enabling exchanges of technological information and know-how to take place in accordance with the methods and guidelines laid down by UNISIST.

In 1980, the number of libraries, referral centres, information analysis centres, data banks and other information services and systems set up by 35 organizations of the United Nations system was estimated at over 300. These international information services and systems represent for Member States, and more specifically for the developing countries, a vital source of information to which they can have access without encountering any obstacles of an economic or political nature. They are also important components of any world information network. It is therefore necessary that within the conceptual framework of UNISIST, efforts to ensure the harmonious development and interconnection of these services and systems should be actively pursued and that their efficiency should be improved with a view to a better use in Member States of the information they convey.

Objectives and principles of action

The objectives of this programme are:

to develop standards, rules, methods, guidelines and other normative tools for the processing and transfer of specialized information and the creation of compatible information systems (conceptual framework of UNISIST);

to enable developing countries, individually or on a regional basis, to set up their own data bases and to have access to those now in existence throughout the world, so as to increase the exchange and flow of information through the application of modern technologies and the above-mentioned normative framework;

to promote the development of specialized regional information networks in co-operation with the appropriate international regional organizations and, in particular, the regional economic commissions;

to contribute to the harmonious development of compatible international information services and systems among the organizations of the United Nations system.

The activities planned under this programme will be carried out in co-operation with the relevant international organizations and experts in the fields concerned, with a view to the further development of the necessary normative tools. Particular attention will be paid to the application of modern technologies and to the adaptation and development of information management and retrieval software packages that can be used on various mini- and micro-computers.

In order to establish national data bases and to facilitate access to those already in existence throughout the world, the programme provides for the execution of integrated projects. These projects will be carried out with the active participation of Member States and international and regional organizations and will be financed by the regular programme of Unesco and extra-budgetary funds. They will provide technical assistance (i) for the establishment, in developing countries, of national and/or regional data bases for processing the specialized information produced in those countries, (ii) for the exploitation of data bases already in existence throughout the world, (iii) for the establishment of linkages with host centres, and (iv) for the local processing of these bases. The fields covered by these projects will be defined in co-operation with Member States in such a way as to take account of the activities carried out under major programme VI (The sciences and their applications to development).

The integrated projects can be regarded as steps on the road leading to the establishment of a flexible international network of compatible information systems and services. These projects will make it possible not only to apply the UNISIST standards and methods, but also to implement, in national and regional contexts, various pilot activities and other actions planned under programme 2 (Infrastructures, policies and training required for the processing and dissemination of specialized information). The design of the systems envisaged will therefore take account not only of technical and normative aspects but also of institutional and human factors that are also necessary for guaranteeing access to information and its full use.

Co-operation with appropriate regional and international organizations will aim at establishing co-operative regional networks for the processing, storage and exchange of scientific and technological information based on existing national services and systems and incorporating the integrated projects referred to above. On a much wider scale, co-operation with the organizations of the United Nations system will aim to encourage the adoption, by their various information services and systems, of the standards and methods developed within the framework of UNISIST so as to ensure their compatible development and interconnection. Unesco will continue to participate actively in the work of the various inter-institutional mechanisms established for this purpose, as it has done within the framework of the Inter-Organization Board for Information Systems (IOB).

Subprogrammes

The activities carried out under this programme will be divided into three subprogrammes.

The first subprogramme, Development of tools for the processing and transfer of information, has as its aim to develop, establish and make available the technical and normative tools required for the design and operation of compatible information systems and services.

The second subprogramme, Development and use of data bases through the application of modern technologies and normative tools, is centred on the implementation of national and regional integrated projects for the development of national and/or regional data bases and the use of internationally available data bases, so as to make possible their gradual interconnection in regional and international information systems.

The third subprogramme, Exchange and flow of information; regional and international co-operation among Member States and with the organizations of the United Nations system, is intended to contribute to the establishment of regional and international networks and to promote their compatibility and interconnection. In collaboration with appropriate regional and international organizations and through suitable inter-institutional machinery, it will also include activities to bring about harmonization and co-ordination in the information field." *

The second Programme concerns the development of infrastructures, policies and training required for the processing and dissemination of specialized information.

" The processing of information involves a succession of varied and complex operations such as storage, sorting, evaluation, analysis and synthesis of data, and retrieval of information likely to meet specific, ever-changing needs. The needs vary according to the field of learning involved, the present state of knowledge, the type of user and the aims pursued, but they are all based on one prerequisite, namely that the information received should be reliable, up to date and immediately available.

The processing operations as a whole are arranged in a logical sequence known as the 'documentary chain'. However, the various documentary functions are not necessarily performed by the same body. On the contrary, there is at present a constant diversification of information processing bodies, according to the part of the documentary chain they are particularly concerned with--and the proliferation of the terms used to designate them--national university, public and school libraries, archives, specialized libraries, documentation centres or services, analysis centres or services, liaison

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* Excerpted from : Unesco. Second Medium Term Plan (1984-1989), Paris, 1983, pp. 160 et seq.

services, data bases, resource libraries, referral services, data compilation services, etc.--reflects the complexity and magnitude of the basic infrastructure with which nations must equip themselves. It is important to keep in view when introducing modern information technologies that there are services that might in parallel appropriately be performed by traditional information handling processes in libraries, archives and documentation services.

Among the various information processing units, there is currently growing interest in the so-called 'tertiary' information services whose function is to provide rapid and reliable answers to highly specialized questions by supplying selected, verified and evaluated information presented in various authoritative forms, e.g. balance-sheets, syntheses, trend studies, etc. These services are complemented by referral, exchange and liaison services, whose function is to direct users to sources of information relevant to their particular field of activity. These 'tertiary' services have expanded considerably in the industrialized countries during the last ten years and their establishment in the developing countries should be encouraged.

Apart from this functional distinction, the various information units can also be differentiated by the areas of knowledge they cover and the categories of user they serve. Information requirements for development depend on the particular branches of activity and/or specialities (pure sciences, technologies, administration, agriculture, industry) concerned, the objective for which the information is sought (research, development, management, production, services), and on the level of training and responsibility of the users (scientists, technicians, planners, managers, ordinary personnel, workers, students). These information units must also provide the general public with information that contributes to development of the individual, better control of the environment and the participation of social groups in economic life. The special information needs of such groups as handicapped users, including the blind, and newly literate populations in rural areas must be kept in mind.

The information requirements of individuals, research centres, enterprises and government departments taken together, constitute an overall national information requirement and if this is not fully met, the country's development may even be compromised. This risk is all the greater for the developing countries, which must undertake new activities. The problem is therefore to ensure that the information requirements of a country--or at least its priority requirements--are met as far as possible by constantly using the resources available in the most economical and efficient way. There is thus a clear need to set up national information systems that will guarantee harmonious operation and optimal use of all the facilities for the storage, processing and dissemination of specialized information.

The complexity and variety of information processing facilities, the complementarity of their functions, the scale of investment they require, the size of the obstacles--political, legal, financial, human and economic--which they must overcome, the increasing variety of users and of their needs and the need to meet the priority information requirements defined by each country--all these factors indicate the need for a rationalization of national efforts, within the framework of a clear policy of co-ordination.

It is therefore necessary to encourage, in the Member States, the establishment of an information policy that is in harmony with the national development policy. Thus a vital role devolves upon suitable national bodies or 'focal points', which, starting from a sound assessment of the expressed or latent needs and their degree of priority, are called upon to co-ordinate, encourage, create, or strengthen suitable services and systems, to conduct a continuing evaluation of the capacity of these services and systems to meet requirements, and to see that they participate effectively in the regional and international information systems and networks.

The diversification of the services provided for users and the increasing application of computer and telecommunications technology to the storage, processing and dissemination of information, create a need for suitable training programmes, both for professionals in the information field and for users. The kinds of occupation involved are tending to become increasingly varied and are sometimes ill-defined. These occupations include those of analyst, indexer, cataloguer, computer specialist, information distributor, systems designer, general personnel, technician, liaison specialist and consultant documentalist, specialized functions which complement and enhance the traditional occupations of librarian and archivist. New qualifications are required--in computer science and management, and in the field or specialized subject with which the information being processed is concerned. There is, indeed, an increasing tendency to require of information specialists a dual qualification, in documentary techniques and in the field or subject he deals with, and to require him to attend refresher courses which enable him to update or to renew his knowledge. There also appears to be a need to familiarize users with the basic documentary techniques and with modern means of information processing, so as to encourage them to make full use of the systems available to them. Taken together, these training activities help to bring about conditions conducive to a fruitful dialogue between information specialists and the users of information--which alone can ensure that the services provided are continuously adapted to changing needs.

Objectives and principles of action

The objectives of this programme are to help Member States:

to set up national information systems and to improve the various components of these systems (libraries, archives, documentary services, information analysis centres, referral centres, numerical data banks, etc.);

to expand their capacity to co-ordinate activities in all sectors of specialized information and to formulate development policies and plans in this field;

to train information specialists and to develop the national and regional potential for practical and theoretical instruction and training in the information sciences, library science and archives administration.

This programme is consistent with the principles of action underlying the conception of the integrated projects proposed in the framework of Programme 1 (subprogramme 2: Development and use of data bases through the application of modern technologies and normative tools). However, the approach to the problems posed and the means of action are different. Programme 1 involves using new information technologies and tested and standardized methods for the purpose of setting up compatible specialized systems, taking into account all the complementary elements--institutional, human and financial--necessary for the success of such an undertaking; all this with the overall operational objective of systems interconnection.

The present programme is concerned with the various aspects of developing the capacity for the storage, processing and circulation of specialized information, with all the various facilities this requires. This calls mainly for: preparing conceptual studies which would be applicable in various contexts; carrying out pilot projects concerning particular problems; providing Member States with the expert advice they request for the execution of specific projects; and encouraging exchange of experience in the formulation of policies and plans and in setting up national information systems and personnel training systems.

Subprogrammes

The activities to be carried out under this programme will be divided into two subprogrammes.

The first subprogramme, National information policies and infrastructures, will seek, firstly, to make decision-makers, and particularly those in the developing countries, aware of the need to develop national information policies and to plan integrated systems which are in keeping with national development policies and, secondly, to reinforce at national level the various specialized information processing services. In this connection, particular attention will be given to consolidating national information focal points and national committees for UNISIST, to establishing services for information analysis and synthesis, to improving the methods of document conservation, especially in tropical and subtropical regions, to developing the activities of the Records and Archives Management Programme (RAMP) and to improving access to documents through implementation of the recommendations of the International Congress on Universal Availability of Publications (UAP).

The second subprogramme, Training of information personnel and information users, will seek to promote the implementation in Member States of plans for theoretical and practical training and the development of suitable teaching materials; to encourage the organization of basic instruction courses and of special international programmes for teachers, information service administrators and high-level specialists; and to foster and guide the organization of training activities for various categories of users in different disciplines." *

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* Excerpted from : Unesco. Second Medium Term Plan (1984-1989), Paris, 1983, pp. 160 et seq.

The Third Programme, Unesco information and documentation systems and services, is the responsibility of LAD, Unesco's Division of Library, Archives and Documentation Services.

" Unesco has always attached particular importance to the collection and international exchange of information within its fields of competence. As a result, various factual and bibliographical information services and systems covering education, the natural sciences, the social sciences, culture and communication have been developed and established within the Organization. In addition, automated documentation services and library and archive services provide information on the programme and activities of the Organization, as they appear in its documentation, for specialists from the Secretariat and Member States (permanent delegations, National Commissions, governmental bodies, universities and research centres). Several years ago Unesco developed the CDS/ISIS-CAN/SDI documentary software package in order to process its own document collection and to form a basis for the development of its specialized information systems. Some institutions in Member States, as well as certain international bodies, have since made use of this software package.

Since 1972, the use of computers for the systematic processing of the bulk of the documentation produced by the Organization, its regional offices and its affiliated institutions has made possible the establishment of a data base which reflects the wide range of Unesco's activities during the last ten years (1972-1982).

In addition, the computerization of the bibliographic records of the Organization's various information units is now under way and this will make it possible to compile a register of the external documentation received through donations, exchanges or acquisitions. This operation has two objectives: firstly, to facilitate the search for and retrieval of documents and information available within Unesco and improve access to them and, secondly, to rationalize the resources of the central library, the sectoral documentation centres and the regional offices and affiliated institutes, and to standardize documentary techniques and procedures.

The international information services and systems established by Unesco, like the various specialized services and systems developed by the other organizations of the United Nations system, are important parts of a future world information network (cf. Programme 1: Improvement of access to information: modern technologies, standardization and interconnection of information systems). They should therefore be improved and expanded by making them compatible, thus making it easier for Member States to participate in information processing and exchange activities. " *

The work of PGI is financed from a variety of sources : the Unesco Regular Programme budget, the Participation Programme, development banks, the United Nations Financing System for Science and Technology for Development, the United Nations Development Programme (UNDP), and funds obtained under Funds-in-Trust agreements. Its total budget from all sources for the current biennium (1986-1987) is approximately US $ 16 million, and this, unfortunately, is not commensurate with the needs of developing countries.

An Intergovernmental Council of 30 members, elected by the General Conference of Unesco guide the design and planning of PGI's Programme.

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* Excerpted from : Unesco. Second Medium Term Plan (1984-1989),
Paris, 1983, pp. 160 et seq.

In brief, the primary role of PGI is to act as a catalyst in promoting and co-ordinating action to improve the provision and use of information throughout the world. It performs this role through consultation and collaboration with a variety of organizations including Unesco Programmes, Member States, the United Nations and its agencies, intergovernmental and non-governmental organizations and individual information specialists.

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Geneva, April 1985
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UNITED NATIONS EDUCATIONAL,
SCIENTIFIC AND CULTURAL ORGANIZATION

INTERNATIONAL BUREAU OF EDUCATION

MEETING OF EXPERTS IN EDUCATIONAL
DOCUMENTATION AND INFORMATION
International Conference Centre
Geneva, 20-24 May 1985

SUMMARY OF REPLIES TO ENQUIRY ON INTERNATIONAL NETWORK FOR EDUCATIONAL INFORMATION (INED)

On September 3, 1984, the Director of the IBE sent a circular letter to the 83 institutions belonging to the Network, informing them of the latest INED developments, and asking a series of questions related to the increase of their participation in Network activities.

By 17 December, 15 answers had arrived from the following countries: Argentina, Barbados. Belgium, German Federal Republic, Guinea, Hungary, Ireland, Israel, Jordan, Luxembourg, Malta, Romania, Sudan, Venezuela and Zaire. An analysis of the answers has given the following results:

1. Are you presently using computers in your documentation work (or are you planning to do so)? If so, what kinds of computers are you using or planning to use? What computer programmes are you (will you be) using?

To this question, eleven countries answered that they are not using computers for documentation purposes; one is using computer assistance in documentation; another is using a mini-computer. Two others intend to use computers, and are now in a planning phase.

2. Some countries have access to international computer networks so that local computers can, in effect, talk to others elsewhere in the world. Do you have such a service in your country, and if so, are you planning to connect your documentation centre computers (if you have one) to such a network?

Thirteen countries answered no to this question and two declared that they eventually could use the computer of other agencies.

3. If IBE could find a way to distribute "floppy discs" usable on small micro-computers, with slices of our data bank on individual discs (for example, discs including current documentation on teacher education, special education, vocational education, educational technology, etc.) would this be a useful service?

If you do have a micro-computer, would a project whereby we might assist you in obtaining such a computer and in training someone to use one for documentation work be useful?

The answers to this question were the following; eight countries are not prepared to use or exchange floppy discs; five others would like to receive from the IBE a microcomputer and get IBE's assistance for training computer experts Two countries are prepared to receive floppy discs if compatible with their systems.

4. IBE works closely with the regional offices of Unesco, several of which have offered courses in documentation work in which IBE personnel have often participated. Have you been involved in these regional courses? If so, have they been useful?

In answer to this question, fourteen countries said that they have not participated in any training course organized by Unesco, and one said that this was so since 1980.

5. The annotated bibliograhies which are in our data bank have limited coverage of educational documentation in many of Unesco's Member States. Is there some way in which your centre could select and abstract significant published materials and documentation in your country to be sent to IBE for inclusion in our data base on a regular basis? Could this be put on a "floppy disc" which you could send to us for use on our computer system?

Nine countries are not able to prepare abstracts for our data base; five others may contribute, depending on different circumstances. One only was ready to contribute with abstracts, but not with floppy discs.

6. Please tell us how you have been using the publications we send you. If any are not of use, or you have suggestions for improving them, please so indicate. The material you have received includes:

i) Directory of Educational Documentation and Information Services
ii) IBE Documentation Centre Acquisitions List
iii) IBEDOC Information (quarterly).

Two countries did not answer this question, but the other thirteen mentioned that these publications were used in different ways such as: circulation among educators, as resource materials etc. It was also mentioned that the series "Experiments and innovations" had been used for the preparation of radio programmes, and others made suggestions concerning the improvement of our publications.

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UNITED NATIONS EDUCATIONAL,
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INTERNATIONAL BUREAU OF EDUCATION

MEETING OF EXPERTS IN EDUCATIONAL
DOCUMENTATION AND INFORMATION

International Conference Centre
Geneva, 20-24 May 1985

INFORMATION NETWORK DEVELOPMENT

By F.V. Mahon, EURONET

0. INTRODUCTION

The IBE and UNESCO, with their Member States are faced with the task of implementing a proposed network for the better use of information resources for educational development.

This paper is a, necessarily brief, given the time and resources available for its preparation, review of the principle topics which need to be considered in order to achieve the above objective.

It is hoped during the course of the meeting to elaborate on the topics raised here in the light of specific questions/problems raised and to give the benefit of the authors experience in the development of an international information network.

The basis for the following is taken from the suggested Work Plan for the experts meeting as outlined at a preparatory meeting in Geneva on 25-26 February 1985.

I. NETWORKS AND THEIR MANAGEMENT

The main purpose of a network is to provide a mechanism for sharing the resources for the benefit of all participants and their clients.

A number of models exist for different types of networks:

- Centralised; all resources are distributed to participants from a single source
- Decentralised; a number of participants agree to common standards so that all participants can use the resources equally

- Cooperative; a number of participants (or all) agree to cooperate in making available their resources to others
- Coordinated; a number of participants agree to coordinate the development of their resources so that duplicata etc is minimised.

Not all of the above models are mutually exclusive. It is a truism of modern information developments that networking developes after a certain amount of activity has already been established. Therefore a successful network involves some level of *compromise* between participants in order to achieve the desired results.

This compromise is an essential component of development of a network and it must be understood by all participants that compromises will be necessary. Given the normal human failings each participant must feel that in making the compromises there is ultimate advantage to be gained from participation.

The net result is that to be successful a network must be *flexible*. This is particularly true of the adoption of standards for its operation. In many cases too much emphasis is placed on the need for rigorous adherence to standards as a prerequisite to network development. A more realistic approach is to aim for *minimum* standards which will enable operations to commence and a regular examination of where improvements/extensions to standards are needed.

This latter function will be the principle role of the *management*. While the detailed work may be carried out by individual participants the management role will be to provide a *motivation*, *policy* and *operations* structure for the network. The management will obviously consist of representatives of the participants and will have a number of levels. The main purpose of the management structure is to provide *continuity* and a spirit of *interdependance*.

II. USERS AND SERVICES

The ultimate objective of a network is to use the resources available to provide services to users. To do this it must first of all know what users want. This is not to be interpreted as meaning that elaborate surveys of user needs should be instituted as a priority. An intelligent assessment of what is presently available and *used* together with a rational appraisal of what is presently *demanded* but *not supplied* should provide a sufficient basis for initial actions.

In many cases it is found that users or potential users are not aware of what is available and make unreasonable demands based on this ignorance. Therefore, a priority action of the network should be a programme of awareness to alert users and potential users to the facilities. This is not necessarily to be achieved by simple publications of holding lists or resources inventories but by pragmatic examples of what kinds of questions can reasonably be answered by the resources available. This of course means that the network management does have available to it an overview of the resources available. It also means that there is available comprehensive information on users and potential users to whom the awareness can be directed.

Based on this initial action, which will in course of time become continuous as new users are identified, indicators may be obtained of gaps in service provision and the necessary management decisions taken on how to fill these gaps.

Ancillary to the above will be a programme of education designed to acquaint users with how to get the best results from the resources. Given the inevitable differences in the level of development between the different user populations this programme will have to take account of the available infrastructure in the environment of the users.

Such marketing actions will have to make use of the widest possible range of media - printed, visual and oral presentations. An important sub-activity here will be ensuring coherence in the messages being transmitted to the different audiences.

III. TECHNOLOGY AND SYSTEMS

There is a widely held belief that modern technology is essential to the proper development of a network. While modern information handling technologies can obviously provide significant advantages in dealing with the problems of large volumes of information they must always be seen as supportive to the main purpose - the sharing of resources. Therefore technology has to be appropriate to the objectives. This is not to be taken in the sense of appropriate technology in the context of developed and developing worlds but as a plea to see technology as a useful additional tool for the achievement of certain objectives.

It will inevitably be found that technologies of various types are already being used by participants for various functions. The main emphasise will be to achieve the necessary compatibility between these uses of technology when appropriate. In terms of the technologies for transmission of information these compatibilities will have in many cases already been achieved by international telecommunications agencies for example. The task then will be to achieve the necessary adaptations and that the transmission technologies can be used efficiently. It is at this point that the agreement on minimum standards will prove useful.

It is inevitable that technology will provide a greater range of options for efficient information handling in the future. Therefore a significant management role will be to decide on the priorities for future applications of technologies. Given the widespread nature of the field of education it is not realistic to try to achieve rigid harmonisation of hardware and software. Agreement on functions to be achieved by the use of information technologies will be most important so that the necessary modifications/adaptations can be carried out on the different hardware and software.

IV. IMPLEMENTATION

The implementation of the network will be carried out in phases which should roughly approximate to the following:

A. Identification of shareable resources and objectives
B. Identification/Sensitisation of user populations
C. Agreement on appropriate management structure
D. Agreement on pilot activities
C. Development of mechanisms for internal information (managment information)
D. Development of training/education for both participants and users
F. Medium and Long Term Planning.

All of the above will require the following inputs:

- Committment of resources (financial and manpower) by participants

- Agreement and committment to the objectives

- Agreement of minimum operating standards

- Mutual understanding of problems/limitations.

V. ROLE OF IGO's

IBE and UNESCO will have the role of coordinators in any network. This is not necessarily because they are the primary resource suppliers, although in the case of IBE the resources are very significant, but because by their very existence they are in touch with a wide range of possible participants.

IBE will certainly play an important role in the coordination of resources from the information supply side. UNESCO will more than likely act as coordinator between INED and other networks because there are many common features. In addition both IBE and UNESCO will have an important role to play in encouraging education, training and marketing.

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REUNION D'EXPERTS DANS LE DOMAINE DE
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MEETING OF EXPERTS IN EDUCATIONAL
DOCUMENTATION AND INFORMATION

Centre international de Conférences
International Conference Centre

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